INDIA RUBBER WORLD
FOUNDED 1889
CAOUTCHOUC
GUTTA-PERCHA
Reg. U.S. Pat. Off. Reg. United Kingdom.

Published on the 1st of Each Month by

THE INDIA RUBBER PUBLISHING CO.

DIVISION OF EDWARD LYMAN BILL, INC.

25 West 45th Street, New York, N. Y. Cable Address: Irworld, New York

HENRY C. PEARSON, F.R.G.S., *Editor*

Volume 75 JANUARY 1, 1927 Number 4

CONTENTS

	Pages
Editorials	188
Rubber Compounding—Webster Norris	189
Rubber Calenders	191
The National Power Show	192
Cooperative Buying and Restriction	193
Rubber Marvels in the Movies	195
Census of Manufactures, 1925	197
Hevea Rubber Tapping System—Vincent Sauchelli, B. Sc.	199
Rubber Solves Baseball Problem	201
Cause and Effect of Hand-to-Mouth Buying	202
Rubber Specialties for Morticians	203
American Rubber Technologists	204
What the Rubber Chemists Are Doing	205
Chemical Patents	207
New Machines and Appliances	208
Machinery and Process Patents	210
Legal Decisions	212
Book Reviews	213
New Trade Publications	213
Abstracts of Recent Articles	214
New Goods and Specialties	215
Rubber Trade Association Banquet	218
Financial and Corporate News	219
American Rubber Trade News	221
Obituary Record	228
Foreign Rubber Trade News	229
Planting Industry in the Far East	231
Patents, Trade Marks, Designs and Labels	233
Rubber and Fiber Shoe Material	235
Inquiries and Trade Opportunities	240
Markets	
Crude Rubber	236
Scrap Rubber	239
Reclaimed Rubber	239
Metal	240
Compounding Ingredients	241
Cotton	243
Statistics	
United Kingdom Rubber Statistics for October, 1926	245
London and Liverpool Landings, Deliveries and Stocks	245
Canada, Statistics for September, 1926	245
Ceylon Rubber Exports from January 1 to September 30, 1926	247
Malaya, British, Rubber Exports	247
United States	
Crude Rubber Arrivals at New York as Reported by Importers	246
Custom House Statistics	247
Imports by Months, During 1926	248
Crude Rubber Imports, Consumption and Stocks	248
Statistics for Nine Months Ended September, 1926	248
Advertisers' Index — Advertising Page	106
Classified Advertisements — Advertising Pages	66-72
Buyers' Directory — Advertising Pages	80-104

Subscription $3.00 Per Year Postpaid in the United States $3.50 Per Year Postpaid to All Other Countries

A Prosperous 1927

THE old year has gone but its record of remarkable achievement and progress will be epochal in the annals of rubber history. The new year promises even greater accomplishment and prosperity in the realization of which THE INDIA RUBBER WORLD pledges a continuation of its long and faithful service.

Cathode Rays Extract Latex

A VISION of a rubber plantation amid a maze of poles and wires and with latex dripping abundantly from the foliage, instead of just oozing from the trunks of trees, may be conjured up as the result of an experiment with a new cathode ray tube. It has been found that when the stream of high-speed electrons issuing from the tube is focussed an inch away on the leaf of the ornamental rubber plant (*Ficus elastica*) with but one milliampere of current, laticiferous secretion is so quickened and the cell walls become so permeable that within twenty seconds a marked exudation of latex takes place. While this has not yet been tried on a *Hevea brasiliensis* leaf, it may be assumed that a similar phenomenon would occur. However, the humble tapper is not likely to soon find himself like Othello, with his occupation gone. Rather is it easier to imagine him being supplanted with a ramification of metal and rubber exhaust tubes fairly sucking the latex from the tree trunks to the coagulating plant, using a system resembling that by which cows are milked in many modern dairies, than to see him displaced by huge basins piped to the factory and set beneath trees being so bombarded with electrons as to yield a veritable rain of rubber.

Perhaps practical use for the new cathode ray tube will first be found in the rubber laboratory. It may be that the rays, which can turn colorless acetylene gas into a solid yellow substance not yet analyzed, will afford reactions that will furnish either the optimum accelerator or the most plausible theory yet offered for the vulcanization of rubber.

The Growing Consumption of Reclaim

DESPITE the subtle propaganda designed to discourage the use of reclaimed rubber, the production of the latter in the United States during 1925, according to the Federal Census, was 110,841 long tons, a quantity increase over 1923 of 85.1 per cent. The consumption of crude rubber for the same period, as given by the census report, was 387,629 long tons. If the reclaim made by rubber manufacturers for their own use were added, the total might equal even a third of the whole amount of crude rubber used in the country. Such remarkable growth may be attributed primarily to the high price of crude rubber, but other factors have played no small part in stimulating the large output. A notable improvement in quality has been the answer of enterprising manufacturers to doubt and prejudice, and rubber men have been finding out that the better product can be used beneficially in mixes in which hitherto reclaim has been strictly taboo.

Rubber Purchasing Organization

ABOUT a year ago Secretary Hoover made vigorous protest against foreign government monopolies of vital raw materials. His words were as follows:

"The best and most permanent cure for this evil now threatening the world is for us in our strength to demonstrate that we can secure freedom in our raw materials, that thereby these combinations cannot succeed economically; that we need not do this by reprisals or by threats, but by setting up some such measures within our own agencies and operations abroad as will bring relief."

These assertions inspired the automotive and rubber manufacturing industries of the United States to serious consideration of plans for securing adequate supplies of crude rubber at reasonable prices.

After many months of deliberations covering every phase of the important questions involved, a crude rubber purchasing organization was formed with the sole object of preventing wide fluctuations in the rubber market.

FOLLOWING THE LIBERIAN GOVERNMENT'S RATIFICATION of the 99-year lease to the Firestone-Liberia Plantation Company, of 1,000,000 acres of land in the African Republic, comes the announcement that harbor and sanitary improvements are being made at Monrovia, in preparation for actual work in the jungle.

Liberia was selected by Harvey S. Firestone after extensive investigations of the rubber growing possibilities in various countries in the world. The scientific knowledge obtained thereby has awarded to Liberia the distinction of being the place where America can grow its own rubber.

Rubber Compounding[1]

Quality and Economy of Stocks—Examples of Calculations

Webster Norris

THE compounder is faced always with the task of evolving workable and serviceable stocks in which the quality factor is consistent with the cost. In other words, he must attain quality with economy. His difficulty consists, not so much in producing a stock of good quality, but in producing a good one at minimum cost. This means that he frequently finds himself working under difficult technical and competitive conditions but not always hopelessly so. Ordinarily cost is uppermost in his thought and at one time cost always meant pound cost to compounders and every other rubber worker.

The serious fault with the old gravimetric compounding was that differences in the volume, or pound-bulk, ratio of the various materials used were practically overlooked. The fact that low cost per pound is not a safe indication of the economy of an ingredient or a compound is gaining general recognition and is back of the movement to figure rubber compounds volumetrically. It is evident that while rubber, reclaims and compounding ingredients are purchased by the pound, a pound does not mean the same bulk. The comparative bulk of two materials is measured by their specific volumes and depends on their specific gravity.

Volume Cost

In the case of practically all rubber goods the component materials are used and the goods made and sold by count or measure. In other words the bulk or volume is an important factor in the cost. Hence, alert compounders are not satisfied to attain a low pound cost for their mixings but reckon also with the factor of specific gravity or the ratio of the weight of the stock to a standard taken as unit gravity. Water is the accepted standard gravity material for solids. It is evident that the economy, relative and actual, of any two materials is correctly shown by comparison of their volume costs. This is ascertained by multiplying the pound cost by the specific gravity of the material. The result is the pound-volume cost, that is to say, it is the cost of a volume of the material equal in bulk to that of a pound of water.

The pound-volume cost, or volume cost for short, is all the index needed to the economy of rubber, reclaim or compounding ingredients. However, many compounders prefer cubic foot cost to pound-volume cost for stocks and ingredients because it seems less abstract or easier of visualization. If cubic foot cost is preferred as the standard of comparison it is ascertained by multiplying the pound-volume cost by 62½, the poundage of a cubic foot of water. Volume cost by the cubic foot is particularly convenient for the cost department in estimating the cost of goods.

The compounder should possess, for ready reference, a complete list of every material he uses, showing for every item its specific gravity, pound cost and pound-volume cost or cubic foot cost.

How misleading, technically, compounding by weight may be if the formula is not checked by volume figuring is well illustrated by the following example. A compound contained weight percentages as follows: 27 rubber, 37 lithopone, 20 zinc oxide, 10½ whiting, also the necessary vulcanizing ingredients and softeners. It had a gravity of 204. Seeking to improve the quality of this stock at the same pound cost the weight percentages of the ingredients were changed to the following: 30 rubber, 20 lithopone, 10 zinc oxide and 25 whiting. The resulting specific gravity was 178. Although the weight percentage of the rubber was increased 3 per cent by this change the volume content of the rubber was 2 per cent less than the original because of the decrease in gravity from 204 to 178.

Naturally the revised stock showed a reduction of quality compared with the original. The compounder maintained the same pound cost in both stocks but the pound-volume cost of the altered stock was actually lowered 13 per cent. Mistakes of this sort can be avoided by considering volume, the percentages of ingredients and the pound-volume cost of the mixing.

Cost accountants sometimes carry the volume-cost idea a step farther and list rubber, reclaims and compounding ingredients at their mill volume cost rates. That is, a cost rate made up by adding the pound purchase price of the item with pound charges, freight, warehousing, compounding and mixing. The total of these pound cost items multiplied by the specific gravity of the material in question expresses its mill volume cost rate. In other words, the respective cost-rate at which a unit volume of rubber, reclaim or compound ingredient, as the case may be, is to be taken in the formula. The advantage of this rate in record keeping shows the "all in" volume cost up to delivery by the mixing department and true relative costs.

Calculations of Compounds

Readers interested in figuring rubber formulas who are in need of help in this matter will find assistance in the following rules and examples. One of the first items to assume or to figure regarding a rubber formula is its specific gravity. The meaning of this term has already been explained. It remains to say a few words about its determination.

Gravity from a Sample

One can ascertain the specific gravity of a rubber mixing either by direct determination from a sample or by figuring from the formula. In the former case a heavily compressed mold cured sample should be used because such a specimen will contain practically no included air to lessen the apparent gravity as an uncured sample would. The specimen is weighed first in air and then in water, using various special forms of spring or weight balances. The size or shape of the sample is immaterial. Its weight when submerged in water is less than that in air by an amount equal to the weight of the water it displaces. Therefore, if the weight of the sample in air is divided by its loss of weight in water the quotient will be the specific gravity.

Gravity from the Formula

The specific gravity of a mixing is found from its weight formula as follows: If the formula is written in pounds and ounces, reduce the weight of each item to ounces. On their total, figure the percentage of each item. The weight percentage of each item has a corresponding specific volume, the value of which can be ascertained by dividing the weight percentage of the ingredient by its specific gravity. The sum of the specific volumes of the ingredients is the specific volume of the complete formula. Since specific gravity is the weight ratio of unit volumes one of which is taken as unity, it is the reciprocal of the specific volume. In other words, divide 1 by the total specific volume of the formula and the result is the specific gravity of the compound represented.

In case the formula is written originally as volume percentages the process of figuring the specific gravity of the mixing is one

[1]Copyright, 1926, by Webster Norris. Continued from THE INDIA RUBBER WORLD, November 1, 1926, pp. 65-66.

of multiplication instead of division. In this case the specific weights of the ingredients are first sought. They are found by multiplying the volume percentage of each ingredient by its known specific gravity; the result is its specific weight. The total of these itemized specific weights is the specific gravity of the compound indicated by the formula.

Volume Percentage

The volume percentage composition of any formula, itemized by weight, is figured from the specific volumes of its ingredients, using the total specific volumes as the base. In other words, multiply the specific volume of any ingredient by 100 and divide by the total volume of the compound. The result is the volume percentage of the ingredient sought.

To find the volume percentage of an ingredient in a compound corresponding to its weight percentage, multiply its weight percentage by the specific gravity of the stock and divide by the specific gravity of the ingredient. The result is the volume percentage sought.

To find the weight percentage of an ingredient in a compound corresponding to its volume percentage, multiply the volume percentage by the specific gravity of the ingredient and divide by the specific gravity of the compound. The result is the weight percentage sought.

The volume percentage proportions of ingredients in a rubber mixing have the technical value of showing definitely the loading carried by the rubber in the combination, and permit close planning by the compounders. The minor volumes of sulphur, accelerators, and concentrated colors may be disregarded from this aspect although they may not be omitted in the final volume cost of the mixing.

Plans of Compounding

From what precedes it is evident that the compounder has choice of three plans upon which to write his formula: (1) The gravimetric percentage basis, (2) the volumetric percentage basis, and (3) the 100 pound rubber basis.

By any of these plans volumetric data can, of course, be figured. The gravimetric basis offers no advantages over the others. It is less satisfactory than either of the others because less direct in results.

The volumetric basis is excellent because it enables the compounder to carry along in close relation both volume loadings and volume costs. In fact, knowing the allowable limit of volume cost and the specific gravity desired, the compounder can write these at once on the form and proportion the items of the mixing in conformity with them, making his selections according to the technical values of the rubber, reclaim and other ingredients available.

The 100-pound rubber basis plan has gained considerable popularity over either of the others and is widely used. Its chief advantage lies in the fact that it allows one to set down at once any recommended weights, per 100 of rubber, of sulphur, accelerators, softeners or minor volume ingredients without regard to that feature. The weights of the bulkier items of the mixing, such as reclaims, reinforcing ingredients, diluent powders and allowance for the mineral matters in reclaims are figured with respect to the desired volume of each on the rubber. The completed ticket affords a very clear analytic view of the formula showing all the essential volume relations, the weight percentages and the compounder's batch weights or practical mixing ticket.

Examples of Formula Figuring

FIRST EXAMPLE. This friction stock is written to total a batch of 300 pounds. The formula is analyzed by converting its individual items into weight percentages on the batch poundage; then by weight per 100 pounds of rubber, and lastly by volumes per 100 of rubber.

Friction Stocks

To figure batch weight into weight percentages, multiply the ingredient weights by 100 and divide each by the batch weight, as follows:

INGREDIENTS					Percentages
Rubber	175	× 100	÷ 300	=	58.33
Reclaim	80	× 100	÷ 300	=	26.67
Accelerator	1.25	× 100	÷ 300	=	0.42
Sulphur	8.75	× 100	÷ 300	=	2.91
Zinc oxide	20	× 100	÷ 300	=	6.67
Thermatomic black	2	× 100	÷ 300	=	0.67
Mineral rubber	10	× 100	÷ 300	=	3.33
Palm oil	3	× 100	÷ 300	=	1.00
	300				100.00

To figure batch weights into weight percentage basis, multiply the individual ingredient weights by 100 and divide each by the batch weight of the crude rubber.

To ascertain the weight of ingredients per 100 pounds of rubber multiply by a factor found by dividing 100 by the total crude rubber and rubber equivalent of the reclaim present.

The rubber equivalent weight contained in the reclaim in the batch is figured from its percentage of rubber as given by the reclaimer. This added to the crude rubber is the total rubber in the stock.

In the example the rubber content of the reclaim is taken at 50 per cent or 40 pounds in the batch and its mineral content the same. The rubber content of the 300 pound batch is therefore 210 pounds. The weight conversion factor is 100÷210= 0.476. The application of the rule follows:

INGREDIENTS					On 100 of Rubber
Mineral in reclaim	40	× 0.476		=	19.040
Accelerator	1.25	× 0.476		=	.595
Sulphur	8.75	× 0.476		=	4.165
Zinc oxide	20.0	× 0.476		=	9.520
Thermatomic black	2.0	× 0.476		=	.952
Mineral rubber	10.0	× 0.476		=	4.760
Palm oil	3.0	× 0.476		=	1.428

To ascertain the volume loading per 100 volumes of rubber find the specific volume of each ingredient and correct to the specific volume of 100 pounds of rubber, as follows:

Find the specific volume of the ingredient by dividing its weight per 100 of rubber by its specific gravity. The specific volume of 100 of rubber at gravity 0.93 is 107.5. In the example, selecting only the larger items, the figuring is as follows:

INGREDIENTS				Specific Volumes
Crude rubber	100	÷ 0.93	=	107.5
Mineral in reclaim	19.04	÷ 2.7	=	7.05
Zinc oxide	9.52	÷ 5.55	=	1.71
Mineral rubber	4.76	÷ 1.04	=	4.58

These specific volumes are referred to 100 volumes of rubber thus:

INGREDIENTS					On 100 Volumes Rubber
Mineral in reclaim	7.05	× 100	÷ 107.5	=	6.558
Zinc oxide	1.71	× 100	÷ 107.5	=	1.59
Mineral rubber	4.58	× 100	÷ 107.5	=	4.26

The continuation of this article will give examples of figuring the formula of a stock written volumetrically and one written with items proportioned to a rubber basis of 100 pounds.

ANNUAL MEETINGS OF S. A. E.

The Society of Automotive Engineers has arranged the following program for its anniversary activities: Annual Dinner, January 13, 1927, Hotel Astor, New York, N. Y.; Annual Meeting, January 25 to 28, 1927, General Motors Building, Detroit, Michigan; and the Carnival, January 28, 1927, Oriole Terrace, Detroit, Michigan.

AMERICAN EXPORTS OF TIRE FABRIC DURING THE FIRST TEN months of 1926 totaled, according to the Department of Commerce, 1,726,997 square yards, value $749,914. Shipments for the month of October reached 212,213 square yards, value $89,237.

Rubber Calenders

Friction and Even Motion—Typical Three-Roll Calenders—Double Friction Calenders

A RUBBER calender may be defined as a machine of three or more rolls, usually steam heated, used to give sheet form to rubber either alone or in combination with fabrics. Beginning with the simplest form of three rolls placed one above the other, many variations have been made in number, size and disposition of the rolls, according to the form of the product desired. Thus in current practice there are many styles of calender machines although all are of two general types.

The first of these types is the friction calender, so called because of the difference in speed between the driving roll carrying the rubber and the bottom roll carrying the fabric to be impregnated with the rubber. The difference in speed causes the accumulation of a "bank" or excess of rubber to form and revolve against the top side of the fabric. This acts to friction coat and impregnate with rubber the structure of the fabric.

In the even motion calender, as the name implies, all the rolls revolve at the same speed. The result is that the rubber sheet produced has a smooth uniform thickness whether run by itself or applied to cloth.

The ordinary 3-roll calenders are driven from the middle roll which is connected to the rolls above and below by gears. If the connecting gears are alike, the rolls revolve at the same speed and the calender is even motion. If the gears are of different size a corresponding difference in speed between the driving and driven rolls makes the machine a friction calender and determines its friction ratio.

Several typical 3-roll calenders are pictured in the group illustrations, Figures 1 and 2. In such calenders the rolls are friction geared at one end and even motion geared at the other. Thus the machine can be used for either purpose by driving out the keys from those gears not needed and driving in those that are to produce the desired motion.

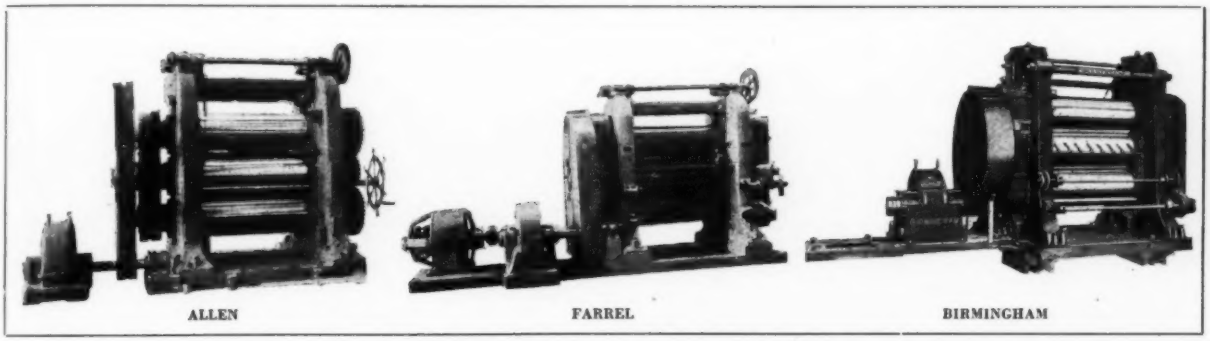


Fig. 1. Standard Three-Roll Friction and Even Motion Calenders

The operation of a common 3-roll friction calender is illustrated diagrammatically at *A* in Figure 3. The calender rolls are first well heated up in order not to cool the equally hot and very plastic rubber mixing which has been prepared on a near-by warming mill. The rolls are adjusted about ¼-inch apart and warmed stock is fed between the top and middle rolls. The latter is at once blanketed with the soft stock and the lower roll is raised upward until a small bank of rubber revolves between the middle and the bottom rolls, opposite the feed side. The end of a roll of dry fabric supported in brackets on the front of the calender is then entered between the middle and bottom rolls. As it emerges on the other side its end is disengaged from the rubber and brought forward to a shell revolving on the take-up brackets where it is rolled up under moderate tension.

On its first passage, the meshes of the fabric are filled and its top surface is coated with the rubber which has been forced

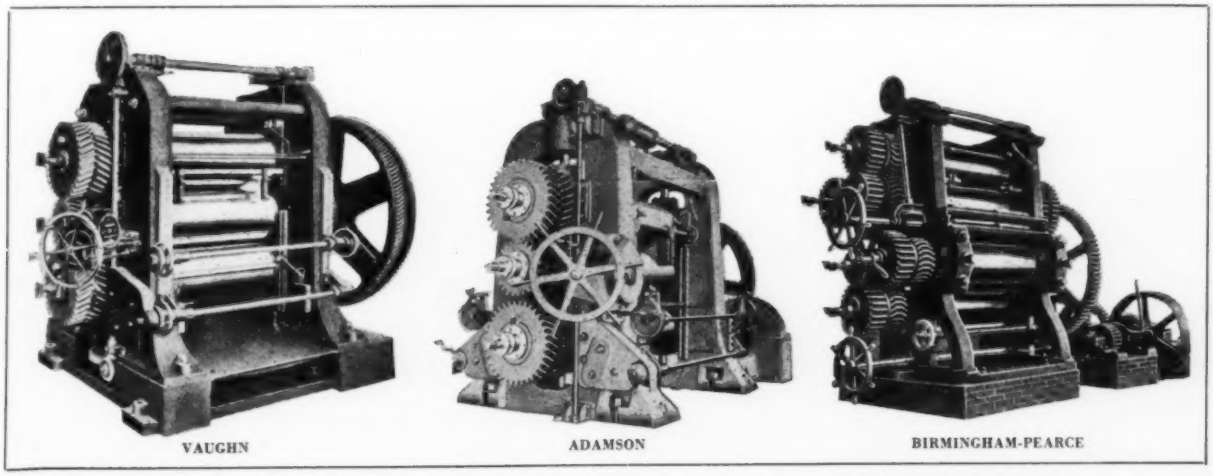


Fig. 2. Standard Three-Roll Friction and Even Motion Calenders—Pearce Double Friction Calender

into it by the bank pictured at *1* in illustration *A* shown in Figure 3. The opposite side is frictioned by a second passage of the fabric. This time a plain cloth liner is allowed to wind up with the coated fabric to prevent adhesion of its tacky surfaces.

Frequently very cheap rubber mixings are used for frictioning. These are sometimes so poor in quality that they will not support themselves in the feed. In such case a sheet or board is arranged to support the material against the bite of the upper rolls.

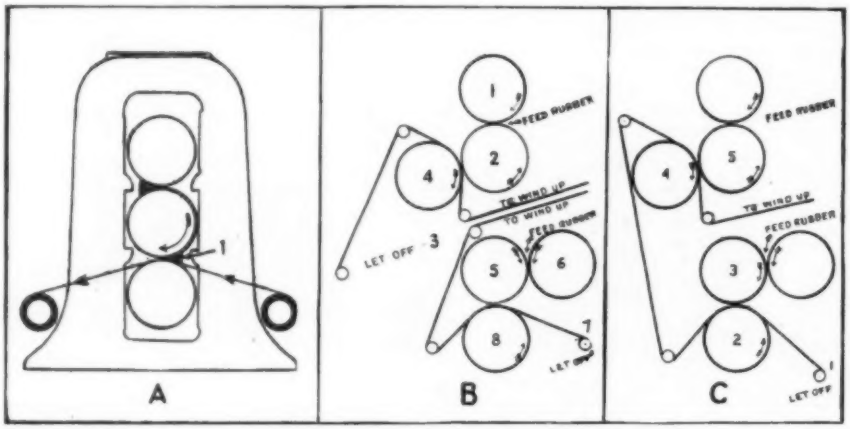


Fig. 3. ***(A)*** **Diagram of 3-Roll Friction Calender.** ***(B)*** **Diagram of 6-Roll Friction Calender Running Two Rolls of Fabric.** ***(C)*** **Diagram of 6 Roll Friction Calender Running Single Roll of Fabric, Two Sides.**

If great yardage of sheeting frictioned both sides is regularly required it may be so coated by a single passage through a double friction calender of the type pictured in the group of calenders shown in Figure 2. This design was one of the early forms of multiple roll calenders. It is known as the Pearce 6-roll friction calender, and was patented many years ago. Practically it is a combination of two 3-roll calenders, and it may therefore be operated as two distinct units to single coat at one time two separate rolls of fabric as indicated at *B* in Figure 3. The rubber feed is between *1* and *2* for the upper half of the machine. The fabric to be coated leaves its shell at the let-off, *3*. Passing over an idler it partly circles roll *4*, corresponding to a common 3-roll calender, and receives its friction coat between rolls *2* and *4*. Thence by way of an idler it goes to its wind-up.

The lower half of the machine duplicates the upper half reversed. Its feed is between the rolls *5* and *6*. The fabric enters the machine from let-off *7*, is frictioned as it passes between rolls *5* and *8*, then proceeds around idlers to its wind-up.

When operated to friction both sides of the same fabric at a single run its path through the machine is as indicated at *C* in Figure 3. In this case only one let-off and one wind-up is needed. Both rubber feeds are supplied with stock as before. From the let-off *1* the fabric enters and is frictioned on one side between rolls *2* and *3*, passing around idlers which presents its uncoated or second side to the second frictioning effect which takes place between rolls *4* and *5*. From this point it passes under an idler and on to the wind-up, where it is wound up on a stock roll with a plain cloth liner.

In addition to frictioning two rolls one side singly or one roll two sides, the gear ratio of this calender can be changed to friction a fabric on one side and coat it on the other on the same run.

Although this style of friction calender was designed 30 years ago it is not found in many modern plants. Not that it is impracticable but rather because its operation requires considerably more care than the simpler ordinary 3-roll machine.

MEXICO'S SHIPMENTS OF CRUDE RUBBER DURING THE FIRST HALF of 1926 had a total value, according to *Commerce Reports*, of 1,875,129 pesos. One peso equals $0.50.

The National Power Show

The Fifth National Exposition of Power and Mechanical Engineering was held at Grand Central Palace, New York, N. Y., December 6 to 11, 1926.

This annual show has rapidly broadened in scope and engineering interest. The first exposition power producing, distributing and utilizing apparatus and their accessory equipment were the chief features. Each successive year the exhibition space has been increased to accommodate other lines, until this year's show covered a very great diversity of equipment with the very latest developments and a number of new features never before shown. The educational value of the exhibition was enhanced by a complete program of motion pictures showing realistically a number of the large developments which cannot be displayed otherwise. Four floors were occupied by the 500 exhibits covering all types of mechanical equipment. The show was paralleled by meetings of the American Society of Mechanical Engineers and the American Society of Refrigerating Engineers which were held in the Engineering Societies building during the first four days of the week. Exhibitions of special interest to the rubber industry included the following:

The Bristol Co., Waterbury, Connecticut. Recording pressure and vacuum gages, recording liquid level gages, and long distance electric transmitting and recording system.

Carrier Engineering Corporation, Newark, New Jersey. Drying and processing equipment and centrifugal refrigeration system.

De Laval Steam Turbine Co., Trenton, New Jersey. Worm reduction gears, steam turbines, centrifugal pumps, blowers and compressors.

General Electric Co., Schenectady, New York. Electric motors and controlling devices. Low pressure centrifugal electric air compressor.

C. J. Tagliabue Manufacturing Co., Brooklyn, New York. Tag-Mono-Duplex recorder for continuous automatic analysis of flue gases, etc., providing visible indications of the percentages of carbon dioxide and carbon monoxide with permanent chart records of both. Thermometers, time and temperature recording instruments.

Taylor Instrument Companies, Rochester, New York. Industrial thermometers, thermo-tyme regulators, Tycos recording thermometers, indicating pyrometers, etc.

Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania. Electrical equipment for all industrial chemical purposes, motors, regulators, furnaces, switches, etc.

The Brown Instrument Co., Philadelphia, Pennsylvania. Chart recording electric flow meters for steam power plant service.

Cooperative Buying and Restriction

Automotive and Rubber Industries Organized to Check Wide Market Fluctuations—Influence of Restriction on the 1926 Market—Industry Facing Uncertainty Regarding Surplus Production, Uncancelled Coupons and Production Per Acre

ANNOUNCEMENT early in December of the matured plans of an organization comprising our major automobile and tire manufacturers for the purpose of preventing wide price swings in the crude rubber market was received with great interest throughout the country. The object of this organization is to purchase large quantities of rubber and hold it in reserve against any possible inflation of price arising from manipulation abroad. Sufficient capital has been made available to maintain from 30,000 to 50,000 tons of rubber in stock. That this latest move by the leaders of the American rubber and automotive industries is bound to have extensive reactions in our trade goes without saying. For possession of a substantial block of rubber will enable this organization to adjust price swings, by releasing stocks or withdrawing them as the market may indicate.

The rubber companies interested in this cooperative buying organization are the United States Rubber Co., Goodyear, Fisk, Firestone, Goodrich, Kelly-Springfield, Ajax and others. The automobile manufacturers include the General Motors Corporation, Willys-Overland, Dodge Brothers, Packard, Studebaker, Chrysler and Mack Motors. It is seen that all the leaders in the automotive and rubber industries are represented—a thing which is bound to assure its success.

It has been announced that the General Rubber Co., a subsidiary of the United States Rubber Co., will act as the purchasing agent for the group. The General Rubber Co. is the same organization that manages the vast rubber plantations of the United States Rubber Co. in Sumatra and British Malaya and has an unusually well trained personnel experienced in purchasing rubber.

Just how and why this move on the part of the American consumers has been made necessary at this time makes an interesting chapter in American trade since the war. The events leading up to this action are herewith briefly reviewed and commented upon.

Post-War Effects and the Stevenson Act

In 1922 the British government made legal the Stevenson Act, the purpose of which was to put an official control on exports of crude rubber from the British possessions in the Middle East. Another purpose was to stabilize the price of rubber at 36 cents—a price then declared to afford a satisfactory profit to the planter. When the act was passed the price of rubber had slumped from an average of 75 cents a pound over a period of five years to a price averaging 16 cents for 1921 and 21 cents for the year 1922.

Herbert Hoover, our Secretary of Commerce, speaking as the representative of the Coolidge Administration before the House Committee on Foreign Commerce early in January, 1926, served notice on the world that the American people were unalterably opposed to foreign government monopolies of vital raw materials and he particularly stressed the British rubber restriction.

The Reaction in the United States

The United States Bureau of Commerce made a thorough investigation of the plantation industry which determined that the average cost of production ranged from 13½ to 18 cents a pound. The rubber planters accordingly were supposed to make about 25 per cent profit at the price level fixed by the Stevenson Act as a "fair" basis.

However, not long after the Act got into operation things began to happen in the always sensitive rubber market. So that, by July, 1925, the price of rubber had soared to $1.21. Despite all efforts on the part of the American consuming public to seek relief from the artifically created famine of the Stevenson Act, and all requests to the officials to make good previous assurances given Americans that the "fair" price of 36 cents would be maintained, no relief was obtained. Finally, after all official and private negotiations had been unsuccessful, a vigorous campaign inspired by Secretary Hoover was launched by the Rubber Association of America, the National Automobile Chamber of Commerce, and the American Automobile Association, to teach the public how to greatly economize in the uses of rubber.

At the hearings held by the Committee on Foreign and Domestic Commerce last January, prominent leaders in the rubber industry were given an opportunity to suggest ways and means. It is significant to note that A. L. Viles, general manager of the Rubber Association of America, recommended one year ago among other things "a system that would assure cooperative buying on the part of the American dealers."

On January 14, 1926, the Rubber Association of America and the National Automobile Chamber of Commerce gave to the press a story which announced plans adopted to assure an adequate supply of rubber at reasonable prices. An authorized appropriation of $10,000,000 was mentioned to put their plans into effect.

Since the first of November, 1926, restriction of rubber in the British colonies has again come to the front as a very live issue. From February 1, 1926, when new rules were laid down for the enforcement of this act, consumers, and this means American manufacturers principally, have been placed in a very unsatisfactory situation. The bugbear of any industry is large fluctuations in the price of its raw material commodities.

At the beginning of 1926 manufacturers had on hand large stocks of high priced rubber which they were forced to acquire. During the previous year the fluctuations in the price of this crude material had swung from 45 cents to $1.23 a pound. When it is considered that it costs less than 25 cents a pound to land crude rubber in this country, such a fluctuation is bound to make the financial life of the manufacturer extremely nervous and insecure. For no matter how he adjusts his selling price it is never possible to load all his losses on to the consuming public. It is quite certain that, if the Stevenson Act is enforced as at present modified, the crude rubber market in a few years is going to experience fluctuations in price as violent or more so than occurred during the second half of 1925.

Governmental Controls Objectionable

One of the most notorious objections to the Stevenson Act is that, like all forced restriction combined with arbitrary price fixing, the producers shift their interest from that of reducing their costs of production under healthy competitive pressure to the arbitrarily fixed high prices. The consumer, instead of looking for means of expanding his business and thus increasing the volume of his consumption, stands pat, looks about for the use of cheaper substitutes, or helps to stimulate the production of his raw material in countries which are not as well adapted in climate, topography and labor supply. The net result is that the whole industry suffers from governmental interference with the normal course of industry which depends for its progress on a continued increase in consump-

tion combined with continued increase in production at lower costs.

All these legislative controls are initiated with the avowed object to stabilize at fair profits prices to both producers and consumers. But, to take rubber alone, the reverse has been abundantly proved. For under restriction there have been more violent price fluctuations than since the boom of 1910 when there was some economic excuse for it.

What Is a Fair Price for Rubber?

An examination of the evidence collected by the House Committee on Foreign and Domestic Commerce as bearing on British rubber control is very important in respect to the cost and fair selling price of rubber. The findings enable us to judge the reasonableness of the attitude of the grower in the past and whether American capital will be attracted to the plantation industry.

The Committee estimates 18 cents a pound as a fair price. This price was based on the findings of the Department of Commerce. The Committee failed to show that this price was based on a production of 400 pounds per acre, whereas the actual average production is 320 pounds; that it was exclusive of bonuses to the European staff and certain taxes which are unavoidable; and thirdly, that it was based on exchange at $4.30 to the pound sterling. The figure should be increased by about 13 per cent with exchange at par.

The statement of one American company with extensive plantations in the Far East estimates the cost per pound (excluding transportation) at 25 cents.

The Committee supported its findings that 36 cents a pound is fair to cover cost and return on capital by two arguments: that it yielded an annual return of 15 to 25 per cent on capital investment and second, the growers admitted it was fair.

We are not told what was meant by "annual return." If it means a return of 15 per cent only during the productive years and exclusive of the first five or six necessary years of growth, then it is not adequate. Profit earning businesses in the United States constantly change hands on a basis yielding an immediate profit of 15 per cent annually on the purchase price. When it is considered that £75 ($375, say) is the average cost of bringing land into bearing over a period of six years and if we add to this sum a return of 15 per cent during the six years on the amount of capital from time to time expended, it is seen the sum needed to give actually an annual return of 15 per cent is about $85 per acre per annum; which on an average yield of 320 pounds per year, figures out at over 26 cents per pound. So that the price which an average cost plantation with average production would be forced to get in order to bring in a return of 15 per cent on the investment would be nearer 50 cents a pound instead of 36 cents.

These cold facts no doubt keep and may keep American financiers away from plantation rubber investment. They can get more than 15 per cent on their capital right at home without the added risk of tropical agriculture. The evidence would lead us to conclude that the restriction scheme was not beneficial to the growers nor very injurious to the consumers. The continuance of the control can hardly be justified by results up to the present writing.

How Much Rubber Is Really Available?

The problem of getting an accurate estimate of the world's total available supply of crude rubber is very difficult. This has not been made any easier by the London ruling on unused coupons held by many rubber estates.

Up to November 1, 1926, the unused coupons held by estates in Malaya and Ceylon represented 30,000 tons. The ruling made these coupons valid and useable at any time. The enforcement of the 80 per cent restriction on November 1, 1926, has made these coupons very valuable. Unsold stocks can be put behind them at any time and in a sense neutralize the effect of the restriction. Reports from the Far East indicate that the practice exists with some estates having a surplus produce to lump this together and ship it under the name of an estate which in fact produced none of it but happened to have unused, uncancelled coupons. One estimate is that as much as 50,000 tons have been shipped in this way.

London authorities published the following interesting figures on production for the year 1926:

The standard production of 189 of the larger Malayan rubber companies is estimated as 160,596,515 pounds. In ten months of 1926 these companies actually produced 55,591 tons or 93 per cent of their standard.

During the same period, 32 Ceylon companies produced 87 per cent of their standard allowance.

Likewise, 50 British owned estates in Java and Sumatra reported 85 per cent of standard. And in Borneo, 8 estates reported 93 per cent of standard.

During the month of October, 1926, all these estates produced over 100 per cent of standard.

The significance of these reports lies in the implication that if each of these companies had exported every pound of rubber harvested during the restriction year ending October 31, 1926, there would still be a good sized carryover from unused export coupons. The suggestion is made that with the new 80 per cent restriction in force and with the October rate of production in force, it is quite certain that these export rights will be used. Here again we see the futility of the restrictive statute. The authorities declare a restriction in effect but by validating previous unused coupons or by estimating too low for standard production they create a situation that practically nullifies the statute.

An Example of Confusion in Estimates

As an example of how confusing this business of estimating can be, we can refer to previous estimates of Secretary Hoover.

On February 1, 1926, exportation of 100 per cent of standard production was authorized. Secretary Hoover submitted estimates to his investigating committee in which for the year 1925 a potential output of 80,000 tons in excess of actual exports was declared "generous." The Committee found that 100 per cent of standard production would have exceeded the permitted exports by about 110,000 tons. From this it would be logical to conclude that 100 per cent would of course be more than could be attained immediately. When it was suggested that the raising of standard production to 100 per cent removed in effect all restriction, since from the Committee's findings we saw this would allow more rubber than was immediately attainable, Mr. Hoover declared it was only a gesture and misleading. "The general calculation is that it would require 115 to 120 per cent to obtain the full potential production." If the Secretary was right, then his department's previous estimate of potential production was from 50,000 to 100,000 tons below the correct figure. When asked about the year 1926, Mr. Hoover offered the department's lower estimates of potential production, which were also accepted as correct by the American Rubber Association. The Committee was rather diplomatic in that it adapted in its report both the Department's lower estimate and the Secretary's statement that potential output is 15 to 20 per cent in excess of standard, thus disregarding the inconsistency between the two.

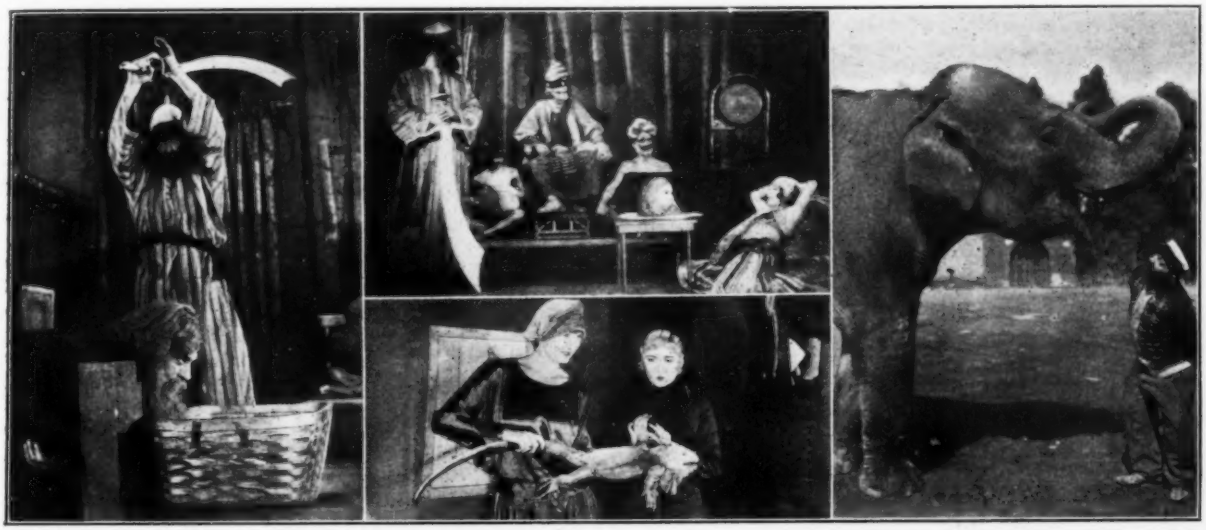
Necessity of Cooperative Buying

Considering this business of crude rubber from the purely economic viewpoint, the conclusion is inevitable that cheap rubber and plenty of it would benefit plantation, factory owner and the public alike. The new agency recently created by the automotive and rubber industries in this country to prevent a wide fluctuation in the price of rubber will serve a very useful purpose. With rubber obtainable in an unrestricted market, and all sources exploited, a thousand new uses will be found for it. We cannot have too much crude rubber. It is one of the most essential raw materials of our civilization. Consumption will increase if production is unrestricted. The future holds great promise if artificial barriers are not set up to interfere with the normal course of trade.

Rubber Marvels in the Movies

Rubber Products Play Many Queer Parts in the Tragedies and Comedies of Filmland—Some of the Ingenious Cinema Contrivances

"RUBBER TIRES" is the title of one of the newest motion picture plays. While it deals more with the meanderings of a flivver nomad among the automobile camps of the country than with the production and consumption of casings, it is, oddly enough, the first movie whose title mentions one of the greatest of American products or the material composing such product. Yet rubber is one of the most indispensable substances used in the motion picture industry, even though it may not get much publicity.



LIONEL BARRYMORE WIELDS A WICKED SCIMITAR OF RUBBER IN THE DECAPITATION SCENES OF "THE DAY OF SOULS"

ABOVE—THE SEVERED HEAD IS ONLY A RUBBER MASK. BELOW—DOROTHY SEBASTIAN IS REALLY NOT AFRAID OF THIS RUBBER LIZARD

CHESTER CONKLIN, COMEDIAN AND FORMER CIRCUS MAN CAN MAKE NORMA THE RUBBER ELEPHANT DO EVERYTHING BUT TALK

When the fairies of filmland float through space and leap over hurdles with ease and grace, as they do in the screen version of an idyllic English play, practical onlookers are naturally anxious to know how such dainty creatures get on without visible means of support. The producers could tell them that the fairies are suspended from elastic shock absorber cords such as are used to cushion an airplane when it comes to earth. The cord is composed of numerous pure rubber threads placed side by side and covered with braid and has remarkable strength and elasticity. Tinted to match a background, it scarcely registers in the camera, if at all.

Rubber Elephant Doubles for Real One

Noted stars figured in "The Great Love," but that silent drama would have been much less interesting were it not for Norma, "the six-ton Bernhardt of the pachyderms," a trained elephant. Even Norma would not have made such a striking impression had she not been supplanted in several scenes with an ingeniously constructed rubber double. The dummy elephant never failed to take the right cue, to extend or curl her trunk when so ordered, sway her head, lift her feet, chuckle with laughter, knowingly roll and wink her eyes, flap her ears, open her mouth, and wrinkle her skin in life-like fashion. So, too, she could take punishment that a real elephant would not permit without characteristic resistance.

The dummy elephant was formed largely of wood and papier maché. The hide and joints were made wholly of thick sheeted sponge rubber with the edges fastened with air drying rubber cement. The trunk was made by stretching a strip of the same rubber spirally about a long coil of spring wire; creases and protuberances on the rough skin were formed with rubber putty, and hair was inserted into rubber putty eyelids. Inside the dummy an operator moved various control levers to make the elephant comply with commands.

A Hideous Gorilla

In another play a hideous gorilla that provided many thrills was made in a rubber factory. An artificer first procured a two piece plaster mold of the head of a large ape, made somewhat larger than a human head, then lined the matrices with soft rubber compound, and having bound the sections together with wire produced a vulcanized rubber form hollow enough to admit a player's head. Openings were cut for the eyes and ventilation was afforded through holes in the nose. Ape's feet and hands were made in the same way, and all were cemented to a suit of denim cloth upon which rough hair was pasted.

A Gigantic Rubber Dragon

Probably the largest and most complicated of "animated" rubber monstrosities used in the movies was a huge dragon made for a German motion picture. It was a reproduction of a dinosaur, was covered completely with rough rubberized fabric, contained several electric motors, a small dynamo and numerous electric lights for the seventeen men who guided the monster from within, and had suction pumps and bellows to make it breathe, drink, expel fire, smoke, etc. It could roll its eyes and body, crawl and

lift its head and neck, and fight and writhe furiously. The great thrill came when the legendary hero thrust his sword into the dragon and it "bled" to death from punctured sacs of crimson liquid.

Salvation Lassie Declines "Live" Lizard

In the play, "A Day of Souls," a snake charmer vainly urges a Salvation Army lassie to fondle what looks and acts like a live iguana, an ugly type of West Indian lizard. In another scene an actor must battle with the big lizard when it springs upon him from a rock. The frightful four-legged reptile is a perfect replica of the original, which, after being frozen, had been cast in plaster, and this in turn provided a two-piece mold which an experienced rubber man filled solidly with a soft compound which he next vulcanized. Bead eyes were inserted, a serrated crest, formed of a notched strip of rubber, was cemented to neck and back, a throat sac of netting was attached, and the lizard was painted green and yellow. The snake charmer by deftly working the mouth with one hand and wriggling the tail with the other imparted much "life" to the lizard. It sprang upon the actor by being thrown from behind a papier maché rock.

Another use of a rubber lizard occurs in a picture where a chuck-walla, six feet long, pursues players and lashes them with its saw-like tail. This lizard is also made by a rubber artificer using an aluminum casting which had been made in a two part mold, the latter having been the double matrix formed about a real lizard. The rubber replica is hollow and in it was clockwork which caused the lizard to move its feet and lash its tail. By means of a piano wire the lizard could also be drawn or thrust into suitable positions.

Severed Head Glows with Light

In a play with an oriental motif an executioner swings a broad scimitar and the head of the aged hero falls into a basket. The sword did not hurt the hero much as it was edged with soft rubber; nor did he even lose his head in the excitement. The decapitation was a photographic trick in double exposure. In another scene the severed head appears on a salver and gradually glowing with light, looks reproachingly at the dancer who had craved such a capital prize. The head is made of very transparent rubber formed by repeatedly dipping a plaster face mask in rubber solution, outlining the features with paint, and putting upon the supported rubber mask a beard and a wig. An inside electric lamp producing slowly increasing light provides the growing radiance.

Rubber masks made in a similar way are often used for actors and actresses whose features must conform to certain unusual types and who can not depend upon ordinary make-up; or who must for economical or other reasons play many wholly different parts. The rubber surface can take grease paint, powder, rouge, etc., quite as well as the face, and an artist can so line it and build it up as to obtain the most startling effects.

Sparing Film Folks' Feelings

Falls are as keenly felt by film folks as those who live outside of make-believe land, but the producers do much to spare their feelings. If they must drop or be hurled from an apparently great height an unseen rubber mattress placed below lessens the jar of the fall very much. Such cushion is either an inflatable mattress, a square of oblong heavy rubber sheet supported at the corners, a large flat section of sponge rubber, or a cushion formed by linking many lengths of garden hose together as cords are set in tire fabric. Parachute droppers get the maximum cushion effect by dropping on mattresses of woven rubber shock absorber cord.

In one comedy picture an actor is pushed through a glass window and falls into a mass of spiny cactus. His feelings are only apparently hurt, however, despite his antics, for the director considerately provided cactus plants of rubber. These had been formed roughly of hollow plaques to which were rubber cemented thorns of uncured tire tread and which were tied to pieces of heavy garden hose sticking through holes in two platforms, one set a few inches above the other. In some cases ordinary rubber hot water bottles have been dressed up to resemble cacti.

Lest players catch cold by having to work off and on for many hours in tanks or in scenes where they may be often drenched with spray, as with water from a fire hose, producers send actors and actresses to a rubber manufacturer to be measured for form-fitting rubber suits. Such garments are made of two pieces of all-rubber hospital sheeting, one to cover the front and the other the back of the wearer, and the leg and side seams are sealed with acid or cold curing cement. The openings are at the neck, arms and ankles, and by thrusting the feet in first the suit can be easily snapped over the person.

A Pile Driver Monkey of Rubber

A famous comedian's fussy misdirecting of a crew erecting poles for a circus tent finally brings him beneath a pile driver in operation. To cure him of his interference the crew cut the rope poising the big "iron" monkey or weight just as the comedian has thrust his head under it and it descends, not with a dull thud but with a bounce that leaves the player grinning and unharmed, much to the crew's dismay. The monkey is made of sponge rubber set within a light metal frame attached to the rope.

Sometimes a huge boulder is pushed off a hill by a villain and hits a hero or heroine below. The player appears to be injured, but really has not been hurt at all, as the big rock is made of sponge rubber over which painted cloth is stretched.

Actors are often "knocked senseless" with blows from rifle-butts, pistol handles, or battle axes, when really they have only been hit with rubber. Dummies falling from heights would hit the ground in lifeless fashion if made of other material, but when constructed with at least a sponge rubber sheeted exterior they show a natural-like resilience.

Scraps of sponge rubber are much used to imitate leaves and other foliage on trees and shrubs. In fact, this material is put to dozens of minor ingenious uses by the "prop" man, who is supposed to be able to accomplish the impossible at all times.

Perspiring Player and Thrifty Drink Vender

The uses of rubber for movie comedy are almost endless. An actor, seemingly suffering from heat, strain, or excitement, may begin to perspire. Water courses from his brow faster than he can mop it off. A hollow, skullcap-shaped rubber water bottle perforated around the edge set under a wig and connected by a tube with a rubber bulb full of water concealed in his clothes and squeezed at the right time explains the trick. A close-up shows a real cockle burr which a villain puts under the blanket worn by the hero's horse. The burr used, however, is only a rubber one. A smile-less comedian evokes many laughs with his funny tricks with fish which would be impossible were not the fish made of rubber.

A bootlegger in one comedy has a large rubber bulb inside his coat, and when a buyer wants a "shot of hootch" the seller pours it from a flask in his left hand while holding the glass in his right. As the buyer pays in advance he must grab his glassful quickly, or the bootlegger may release the pressure on the bulb and the hootch will be drawn back from the glass through a rubber tube passing down his right sleeve; or with similar sleight of hand the thrifty seller may thus replenish his stock from glasses and bottles at a wet party.

Many of the most impressive, fantastic, and amusing cinema effects would be impossible without rubber; but the tricks of the movie trade are not to be learned from the press agents, nor are many producers and technicians very eager to dispel the most cherished illusions of the movie fans.

Census of Manufactures, 1925

Rubber Goods, Other Than Tires, Tubes, Boots and Shoes

THE Department of Commerce announces that, according to data collected at the 1925 biennial census of manufactures, the value of rubber goods, other than tires, tubes, boots and shoes[1] manufactured in 1925 amounted to $308,531,543, an increase of 22.3 per cent as compared with $252,245,820 in 1923, the last preceding census year. Of the total for 1925, $96,807,833 represents the value of rubber goods of the class in question which were made as minor or subsidiary products by establishments engaged primarily in the manufacture of tires or of rubber boots and shoes.

The values of the principal products reported were as follows: Rubber heels and soles, $36,476,239; rubber hose, $35,643,822; hard rubber goods, $29,110,589; rubber belting, $23,481,072; reclaimed rubber (sold as such), $23,020,517; rubberized fabrics, $21,632,878; druggists' and stationers' sundries, $18,435,585; all other rubber goods, including rubber packing, clothing, flooring, and tennis and golf balls, $120,730,841.

Of the 347 establishments reporting for 1925, 63 were located in Ohio, 52 in New Jersey, 50 in Massachusetts, 37 in New York, 26 in Illinois, 18 in California, 18 in Pennsylvania, 15 in Connecticut, 10 in Indiana, 9 in Missouri, 8 in Texas, 7 in Michigan, 5 in Rhode Island, 5 in Wisconsin, 3 in Colorado, and the remaining 21 in 12 other States.

The statistics are presented in Tables 1 to 6, herewith. The figures for 1925 are preliminary and subject to such correction as may be found necessary upon further examination of the returns.

[1] The report on the manufacture of tires and tubes and that on the manufacture of rubber boots and shoes was published in THE INDIA RUBBER WORLD, December 1, 1926, pp. 139-140.

TABLE 1. SUMMARY FOR THE INDUSTRY—1925 AND 1923

	1925	1923	Per cent of increase
Number of establishments	347	344	0.9
Wage earners (average number)[a]	34,471	34,470	[b]
Maximum month	Dec. 37,016	Apr. 36,941	....
Minimum month	June 33,079	Sept. 32,075	....
Per cent of maximum	89.4	86.8	....
Wages	$41,879,513	$39,790,144	5.2
Cost of materials (including fuel, electric power, and mill supplies)	$118,314,228	$90,728,764	30.4
Products, total value	$214,426,038	$182,584,195	17.4
Rubber goods	$211,723,710	[c]	....
All other	$2,702,328	[c]	....
Value added by manufacture[d]	$96,111,810	$91,855,431	4.6
Horsepower	194,186	178,899	8.5

[a] Not including salaried employes; [b] Increase of less than one-tenth of 1 per cent; [c] No comparable data; [d] Value of products less cost of materials.

TABLE 2. PRODUCTS, BY KIND, QUANTITY AND VALUE, FOR THE UNITED STATES—1925 AND 1923

	1925	1923	Per cent of increase or decrease
Total value	$308,531,543	$252,245,820[a]	22.3
Products of the industry proper[b]	211,723,710	[c]	....
Subsidiary products of the other rubber industries[d]	96,807,833	[c]	....
Rubber Heels, for sale as such:			
Pairs	342,195,710	289,221,857	18.3
Value	$26,091,662	$23,690,841	10.1
Rubber Soles, Including Composition or Fiber, for sale as such:			
Pairs	36,064,367	13,509,232	167.0
Value	$10,384,577	$4,907,662	111.6
Golf Balls and Tennis Balls[e]:			
Dozens	223,811	[f]	....
Value	$756,746	[f]	....
Rubberized Fabrics, for sale as such, total value	$21,632,878	$20,758,169	4.2
Automobile and carriage:			
Yards	25,232,299	33,038,756	—23.6
Value	$13,873,238	$14,188,553	—2.2
Hospital sheeting—			
Yards	3,185,141	[g]	....
Value	$1,397,983	[g]	....
All other—			
Yards	22,654,627	18,100,656	25.2
Value	$6,361,657	$6,569,616	—3.2

[a] Includes value of rubber heels and soles, which at the census for 1923 were treated as products of the rubber boot and shoe industry; [b] The term "industry proper" refers to the subgroup of establishments engaged primarily in the manufacture of rubber goods other than tires and tubes and boots and shoes; [c] No comparable data; [d] These industries are (1) the manufacture of rubber tires and inner tubes, (2) the manufacture of rubber boots and shoes; [e] Data for these products combined to avoid disclosing operations of individual establishments; [f] Golf balls, tennis balls, and rubber flooring not reported separately; included in "All other manufactures of rubber;" [g] Hospital sheeting not reported separately; included in "All other" rubberized fabrics; [h] Not reported separately.

	1925	1923	Per cent of increase or decrease
Rubber hose, total value	$35,643,822	$34,011,774	4.8
Fire:			
Feet	10,835,829	[h]	....
Value	$5,400,619	[h]	....
Garden:			
Feet	131,274,543	[h]	....
Value	$11,514,092	[h]	....
All other:			
Value	$18,729,111	[h]	....
Rubber belting, total value	$23,481,072	$24,266,881	—3.2
Transmission	$15,145,579	[h]	....
Conveyer	$5,868,238	[h]	....
All other	$2,467,255	[h]	....
Rubber flooring:			
Square feet	11,959,542	[f]	....
Value	$6,123,362	[f]	....
Reclaimed rubber, for sale as such:			
Pounds	243,851,873	131,731,945	85.1
Value	$23,020,517	$11,714,438	96.5
Rubber packing, *value*	$4,443,803	$5,628,272	—21.0
Rubber clothing, *value*	$7,748,135	$13,146,962	—41.1
Druggists' and stationers' sundries, *value*	$18,435,585	$19,864,000	—7.2
Hard rubber goods, value	$29,110,589	$25,133,680	15.8
All other manufactures of rubber, *value*	$101,658,795	$69,123,081[e]	47.1

The following table presents statistics for all states for which separate figures can be given without disclosing the operations of individual establishments. Certain of the "All other States," however, reported larger values of products than some of the states shown separately.

TABLE 3. SUMMARY FOR THE INDUSTRY, BY STATES—1925 AND 1923.

	Number of establishments	Wage earners (average number)[a]	Wages	Cost of materials	Value of products	Horsepower
United States:						
1925	347	34,471	$41,879,513	$118,314,228	$214,426,038	194,186
1923	344	34,470	39,790,144	90,728,764	182,584,195	178,899
New Jersey:						
1925	52	8,287	10,762,343	31,828,980	53,457,959	48,866
1923	57	8,477	10,303,251	22,576,521	47,000,238	42,106
Massachusetts:						
1925	50	6,258	7,550,270	26,099,855	44,454,951	38,172
1923	55	6,675	7,869,410	21,335,530	39,065,475	36,694
Ohio:						
1925	63	4,889	5,984,830	14,903,217	28,011,082	31,872
1923	51	4,425	5,292,195	10,423,643	21,803,547	21,198
New York:						
1925	37	4,359	5,378,395	12,857,516	24,889,219	11,830
1923	42	4,925	5,661,458	11,872,710	24,709,174	19,571
Connecticut:						
1925	15	2,496	2,979,377	8,691,272	15,295,582	16,324
1923	13	2,530	2,513,479	6,295,446	12,702,877	13,921
Rhode Island:						
1925	5	2,130	2,269,482	4,607,516	9,582,976	9,015
1923	5	1,732	1,666,291	2,719,966	6,443,643	11,192
Illinois:						
1925	26	1,162	1,493,382	3,495,906	6,945,014	7,998
1923	29	1,137	1,395,930	2,502,650	5,772,536	7,799
Pennsylvania:						
1925	18	1,034	1,265,795	3,228,137	6,482,080	6,983
1923	22	1,613	1,901,257	4,808,397	9,636,060	8,516
Indiana:						
1925	10	1,194	1,530,433	2,650,259	6,236,899	7,134
1923	10	790	930,489	1,365,494	3,269,872	7,122
California:						
1925	18	649	739,830	2,692,793	5,776,935	7,460
1923	15	839	917,149	2,148,344	4,567,170	4,745
Michigan:						
1925	7	278	396,864	2,546,497	4,297,379	2,152
1923	6	104	125,980	1,039,548	1,291,074	1,064
Wisconsin:						
1925	5	278	302,913	1,033,162	1,614,144	1,413
1923	6	246	247,921	790,527	1,233,306	1,018
Missouri:						
1925	9	186	208,627	650,844	1,212,539	737
1923	7	87	80,410	179,192	414,557	286
Texas:						
1925	8	91	60,025	242,077	547,225	83
1923	6	34	23,958	110,760	235,819	71
Colorado[b]:						
1925	3	19	15,609	57,141	102,882	22
All other States[c]:						
1925	21	1,161	941,338	2,729,056	5,519,172	4,125
1923	20	856	860,966	2,560,036	4,438,847	3,596

[a] Not including salaried employes; [b] Included in "All other States" for 1923; [c] Delaware, Georgia, Iowa, Louisiana, Maine, Maryland, Minnesota, North Carolina, Oklahoma, Oregon, Virginia, and Washington.

The following table presents statistics for all cities for which separate figures can be given without disclosing the operations of individual establishments. Certain other cities, however, reported larger values of products than some of those shown below.

TABLE 4. SUMMARY FOR THE INDUSTRY, BY CITIES—1925

	Number of establishments	Wage earners (average number)[a]	Wages	Cost of materials	Value of products	Horsepower
New York, N. Y.	31	3,224	$3,622,344	$8,087,960	$16,484,733	6,118
Akron, Ohio	11	1,366	1,880,892	4,472,568	8,576,577	11,243
Cleveland, Ohio	8	1,396	1,779,915	4,772,593	8,170,346	7,153
Trenton, N. J.	7	1,404	1,798,601	4,706,105	8,102,046	8,700
Chicago, Ill.	20	1,116	1,443,592	3,359,797	6,675,065	7,817
Philadelphia, Pa.	5	485	593,625	2,173,813	4,006,214	3,179
Los Angeles, Cal.	9	163	182,333	620,598	1,780,037	1,539
Newark, N. J.	6	302	326,890	533,173	1,461,733	1,293
Boston, Mass.	8	353	366,839	573,488	1,426,916	1,344
Barberton, Ohio	6	428	400,126	642,815	1,267,318	1,710
Dayton, Ohio	4	82	113,518	277,926	680,676	514
St. Louis, Mo.	5	61	75,008	238,509	472,420	20
Denver, Colo.	3	19	15,609	57,141	102,882	22

[a] Not including salaried employes.

The following table presents statistics for all states for which separate figures can be given without disclosing the operations of individual establishments. Certain of the "Other States," however, reported larger values of the specified products than some of the states shown separately.

TABLE 5. PRODUCTS, BY KIND, QUANTITY, AND VALUE, BY STATES—1925

	Number of establishments	Quantity (Pairs)	Value
Rubber Heels, for sale as such			
Total	50	342,195,710	$26,091,662
Ohio	9	160,937,842	$12,947,525
Massachusetts	17	97,285,612	6,779,917
Other States (California, Illinois, Indiana, Maine, Maryland, Missouri, New Jersey, New York, Oregon, Pennsylvania, Texas, and Wisconsin)	24	83,972,256	6,364,220
Rubber Soles, Including Composition Fiber, for sale as such			
Total	27	36,064,367	10,384,577
Massachusetts	12	20,789,155	$5,916,132
Other States (Colorado, Illinois, Indiana, Maryland, New Jersey, Ohio, Oregon, and New York)	15	15,275,212	4,468,445
Rubberized Fabrics, for sale as such			
Automobile and carriage			
Connecticut, Massachusetts, Michigan, New Jersey, and Ohio	10	25,232,299	13,873,238
Hospital Sheeting			
Total	16	3,185,141	1,397,983
Massachusetts	6	2,056,638	$844,527
Other States (Connecticut, New York, Ohio, and Pennsylvania)	10	1,128,503	553,456
All Other			
Total	24	22,654,627	6,361,657
Massachusetts	8	12,243,810	$3,533,496
Other States (Colorado, Connecticut, New York, Ohio, Pennsylvania, Rhode Island, and Wisconsin)	16	10,410,817 (Feet)	2,828,161
Rubber Hose			
Fire			
Total	14	10,835,829	5,400,619
California, Connecticut, Massachusetts, New Jersey, New York, and Ohio	....	.....	.....
Garden			
Total	20	131,274,543	11,514,092
New Jersey	10	60,563,593	$5,465,286
Other States (California, Connecticut, Delaware, Massachusetts, New York, and Ohio)	10	70,710,950	6,048,806
All Other			
Total	30	.....	18,729,111
Ohio	7	.....	$7,555,356
New Jersey	9	.....	5,294,573
Other States (California, Colorado, Delaware, Illinois, Massachusetts, Minnesota, New York, and Wisconsin)	14	.....	5,879,182
Rubber Flooring		(Square feet)	
Total	22	11,959,542	6,123,362
Massachusetts	4	3,755,991	$2,582,088
Other States (Illinois, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Washington, and Wisconsin)	18	8,203,551	3,541,274
Reclaimed Rubber, for sale as such		(Pounds)	
Total	32	243,851,873	23,020,517
New Jersey	9	40,860,359	$4,211,217
Massachusetts	6	33,620,833	3,430,493
Other States (California, Connecticut, Indiana, Iowa, Maryland, New York Ohio, Pennsylvania, and Texas)	17	169,370,681	$15,378,807
Rubber Belting Transmission			
Total	23	.....	15,145,579
New Jersey	10	.....	$6,357,679
Other States (California, Illinois, Massachusetts, Minnesota, New York, and Ohio)	13	.....	8,787,900
Conveyer			
Total	17	.....	5,868,238
New Jersey	7	.....	$2,220,816
Other States (California, Illinois, Massachusetts, New York, Ohio, and Oregon)	10	.....	3,647,422
All Other			
California, Colorado, Georgia, New Jersey, and Ohio	8	.....	2,467,255
Golf Balls and Tennis Balls[a]		(Dozens)	
Ohio, Pennsylvania, and Rhode Island	3	223,811	756,746
Rubber Packing			
Total	23	.....	4,443,803
Ohio	4	.....	$1,872,142
New Jersey	8	.....	1,507,303
California	5	.....	684,654
Other States (Illinois, Massachusetts, New York, and Pennsylvania)	6	.....	379,704
Rubber Clothing			
Total	30	.....	7,748,135
Massachusetts	10	.....	$3,547,087
New York	3	.....	478,619
Missouri	3	.....	285,434
Other States (California, Connecticut, Illinois, New Jersey, Ohio, Rhode Island, and Wisconsin)	14	.....	3,436,995
Druggists' and Stationers' Sundries			
Total	63	.....	18,435,585
Ohio	22	.....	$7,666,605
New Jersey	12	.....	2,046,976
Massachusetts	9	.....	1,830,144
New York	5	.....	144,453
Other States (California, Colorado, Connecticut, Illinois, Louisiana, Maryland, Missouri, Pennsylvania, Rhode Island, and Texas)	15	.....	6,747,407
Hard Rubber Goods			
Total	38	.....	29,110,589
Ohio	13	.....	$9,603,279
Other States (California, Connecticut, Illinois, Massachusetts, Michigan, Missouri, New Jersey, New York, Oregon, Pennsylvania, and Rhode Island)	25	.....	19,507,310
All Other Manufactures of Rubber			
Total	245	.....	101,658,795
Ohio	46	.....	$36,374,010
New Jersey	27	.....	13,819,483
New York	29	.....	11,919,832
Massachusetts	31	.....	10,853,766
Pennsylvania	13	.....	6,314,224
Illinois	23	.....	4,404,560
Connecticut	8	.....	4,130,433
Indiana	9	.....	3,631,976
California	15	.....	1,553,438
Michigan	6	.....	1,408,456
Missouri	4	.....	1,299,221
Texas	8	.....	500,920
Other States (Colorado, Delaware, Georgia, Iowa, Minnesota, North Carolina, Oklahoma, Oregon, Rhode Island, Virginia, Washington, and Wisconsin)	26	.....	5,448,476

[a] Data for these products combined to avoid disclosing operations of individual establishments.

The following table presents statistics for all states for which separate figures can be given in Table 3. See headnote, Table 3.

TABLE 6. CRUDE RUBBER CONSUMED AND STOCKS HELD BY ESTABLISHMENTS ENGAGED PRIMARILY IN THE MANUFACTURE OF RUBBER GOODS OTHER THAN TIRES, TUBES, BOOTS AND SHOES, BY STATES—1925

United States	Consumption in 1925 (long tons)	Stocks on hand December 31, 1925 (long tons)
Total	35,855	5,418
Plantation	25,556	3,163
Pará	4,495	1,668
All Other	5,804	587
California	588	108
Colorado	3	....
Connecticut	2,122	178
Illinois	1,036	124
Indiana	247	32
Massachusetts	8,089	765
Michigan	164	10
Missouri	225	7
New Jersey	9,152	2,136
New York	6,063	304
Ohio	3,070	438
Pennsylvania	1,005	82
Rhode Island	3,168	1,172
Texas	3	....
Wisconsin	142	10
All other States	778	52

Hevea Rubber Tapping Systems[1]

Suggestions Culled from Proven Plantation Practice

Vincent Sauchelli, B. Sc.

THE most important operation on a rubber plantation is tapping, because the capital of the estate is really the bark of its trees and profits or losses will depend on how that capital is utilized. Therefore the following suggestions culled from proven plantation practice in the Far East are of importance in avoiding the costly mistakes, while profiting from the successes of the older pioneer plantations.

Basic Facts

One of the basic considerations in this general subject is to determine what constitutes the average economic life of a rubber tree. This is necessitated by the fact that a tapping system must provide for periods of bark renewal. We know that excision of large areas of the bark is a drain on the vitality of the tree. The loss of latex in itself apparently does not devitalize the tree. Hence, if a tree is to have its bark excised regularly a sufficient period of time must be allowed to renew the bark. The bark area removed must be such that it will not prove too drastic to the tree's vitality; and the frequency of tapping must be suited to the amount of bark excised and to the other factors affecting the vitality of the tree. Of course our knowledge can only be based on general averages, but it is deduced from good practice and wide experience.

Tapping Is a Fine Art

By the sound method of trial and selection, there has grown throughout the rubber growing areas of the Middle East an understanding of tapping and tapping systems which is both a science and an art. The science is the slowly accumulated knowledge of the botany and physiology of the rubber tree; the art is the skill in the excision of bark by means of suitable tools. Many factors had to be studied and experimented with. Led at first by the splendid initiative of the Ceylon experiment stations, Malaya and Sumatra gradually worked up the more scientific aspects of tapping. The newer knowledge was gradually disseminated to all estates. Eventually several practical systems became the universal usage. It is these systems with their more recent adaptations to present day labor and other economic conditions that form the body of this discussion.

One-Third Daily Tapping—Change Over from Basal

Basal V One-Half Circumference Alternate Day Tapping

The Cambium

The so-called "bark" of the Hevea tree is made up of the outer bark proper, the cortex, which is the soft layer that contains the latex or milk cells and the very thin cambium layer. The cambium is the living organ of the tree. It is this layer which gives birth to new cortex cells and wood cells. It is of great importance in tapping since it is the cambial layer which must renew the bark and latex vessels removed in tapping. For this reason, its vital importance must be fully appreciated, particularly its relatively wafer-like thickness—about 1/500th part of an inch thick. To touch it with the tapping knife is to injure it. The best management supervises and checks up all wounds of cambium tissue made by tappers. For these wounds manifest themselves later as burrs, stem diseases, rough uneven surfaces on the renewed bark and in other objectionable ways that interfere with latex extraction.

The Latex Vessels

The milk or latex vessels are located in the cortex layer which lies between the outer bark and the cambium. They run up and down parallel with the length of the trunk. They are not separate long vertical tubes but seem to be joined at different intervals by short bridge-like latex tubes—forming what is technically re-

[1] See also "Evolution of the Plantation Rubber Tapping System," THE INDIA RUBBER WORLD, July 1926, pp. 198-200.

ferred to as anastomosis or a network structure. The latex does not flow from roots to stem after the manner of sap in maple sugar trees. It is manufactured in situ, that is to say, in the area from which it is taken.

Tapping the Tree

The art of tapping consists of skilfully cutting through the bark into the cortex without wounding the cambium for the purpose of opening the latex or milk arteries to permit the milk to flow out. A free incision is made into the latex vessels by an appropriate tapping tool. The cut must be made by a firm and delicate hand directed by experience and judgment. All of the cortex layer—about 3/16 of an inch thick—must be cut into. Most of the milk comes from the inner 1/16 of the cortex next to the cambium. This last fact emphasizes the necessity to tap deeply and the great care needed to prevent wounding the cambium.

Tapping proceeds in a slow but progressive way. The bark is shaved off in very thin sections at each excision. The thickness of each shaving is about 1/25 of an inch. In daily tapping it is even thinner. The first or opening excision may yield little if any latex. If any does flow it will be a thick yellowish latex which congeals quickly and there is no flow because the latex vessels are closed off by the coagulated rubber. The next few tappings set up what is termed a "wound response" and thereafter occurs a steady flow of latex with each excision.

Owing to drying of the exposed surface of the bark, it will be necessary to make the shavings somewhat thicker in the alternate daily system of tapping. The bark consumption in such a system is comparatively higher than for the daily system but the increased yield and the economies effected more than compensate. A tree starts right in to produce new bark as soon as the old is cut away. By the time two sections are used up it is possible to come back to tap at the original starting point of the tree. It is advisable always to permit enough time for the tree to make a complete renewal whose thickness will probably be just a trifle less than original non-tapped bark.

System for Opening New Trees

The manager selects an area in which not less than 80 per cent of the trees have a girth of not less than 22 inches at 3 feet from the ground. He then details a man to mark these trees by some distinguishing sign—a ring made with whitewash at 6 feet high, indicates they are to be tapped. A man is detailed to mark the slope and height of the tapping cut. A 40 degree slope is suggested, and a special marking instrument or the usual tapping knife is used for this purpose. To assist in getting the correct slope of the cut, a model is made of some flexible material such as tin or cardboard. This is placed flat against the trunk and a mark is cut into the bark along the slope edge of the model. Two inches of the height of the vertical channel are allowed for the cup. Small spouts about two inches long can be manufactured on the estate. Wire cup-hangers also can be easily fashioned by estate labor. However, these things can be purchased from the usual supply houses at no great expense.

The Tapping System

Assuming that all the details of tapping tools, cups, wire hangers, spouts and collecting cans have been worked out and everything is ready for the tapping, we shall at once proceed to the tapping system itself. This is to be a basal V on one-half the circumference to run for 5 years. The bark consumption is to be held down to ¾ of an inch per month. The tapping is done on alternate days. Closest supervision is necessary to conserve bark. One must see to it that the cut is deep enough and yet he must insist that the tapper avoid wounding the cambium.

After the basal V on ½ circumference uses up both sides of the tree, the cut is changed to a single ⅓ cut of the circumference.

COMBINED ALTERNATE DAILY 1/2 CIRCUMFERENCE AND BASAL V AND 1/3 SINGLE CUT DAILY SYSTEM

Tapping	Bark	Height from Tree Base: 1st Half	2nd Half
½ basal V.....	Virgin Bark	20 Inches	26 Inches
1 cycle	Total Bark Consumption..	18	24
	(2 inches for cup)	2	2
		20	26

At the rate of ¾" bark per month, 18" will be used up in 2 years, 26" will be used up in 3 years.

Total time for 2 basal V's, 5 years. Age of trees when change over to ⅓ cut approximately 11 years.

⅓ Single Cut Daily Thirds	Bark	Height from Tree Base: 1st Third Inches	2d Third Inches	3d Third Inches
1st Cycle				
1st	Virgin and.....	38	..	..
2nd	Renewal	..	38	..
3rd	Renewal	..	..	38
2nd Cycle				
4th	Renewal	38	..	..
5th	Renewal	..	38	..
6th	Renewal	..	..	38

Bark consumption rate, 1 to 1¼ inches per month. Total bark consumption for 1st cycle, 38" x 3 = 114 inches—114 months or 9½ years. Period of renewal for each ⅓ section, 9 years.

Daily tapping is used with this new cut and so arranged as to give 4 years for the 1st renewal; 6 years for the 2nd renewal and 8 years for the 3d renewal. The single ⅓ cut is estimated to yield very good returns for an active period of 30 to 35 years. Since an economic life of 35 years is as much as can be expected of any tree, this system will be satisfactory on that score. Thirty cuts to the inch of bark consumption will be considered very good tapping on the daily system with a ⅓ cut. It is of course understood that as the trees grow older the girth increases and therefore the length of the ⅓ cut is automatically increased proportionately.

If the 4th renewal requires more than 8 years, it will then be time to think of using a single cut on ¼ circumference which will permit a 10 to 12 year renewal. This switching to the ¼ enables the tapping to be kept toward the base of the tree where the latex yield is always more abundant as against going higher up the trunk with less yield.

In all systems of tapping provision must be made for a complete bark renewal. The full period must be given if the vigor of the tree is not to be reduced and the incidence of disease not made easier. Hence the supervision must be directed to keeping the bark consumption within the limits calculated for it beforehand. Another point to insist on is that the change-over from one tapping section to another should be made all at the one time. If this is not done, the confusion of cycles becomes great. There will be some tappers who use up the bark more quickly than others and these will want to change over to the next tapping sooner than the rest. This should not be permitted.

Every wound discovered on a tapping surface should be noted by the head tapper and reported on the same day to the assistant manager in charge of his respective division. The manager's office should have a written record of all such wounds as well as all other records concerning the tapping operations. These should be kept up to date and separately for each division. This will greatly facilitate supervision and help to grade the tappers so as to eliminate the poor ones.

Other Practical Systems

The trend in tapping systems in the Middle East plantations is more and more toward very conservative methods. There are estates which tap on the single quarter, alternate day system. This allows a 10 to 12 year renewal without taking the cut higher than 24 inches from the ground. However ideal such a system may be for renewal purposes it is too conservative for yield purposes. Those estates which have tapped on a ½ circumference alternate day system have found it much more economical in labor and in tapping utensils and far more profitable as regards

greater yields than those using the single ¼ cut alternate day system. After all, a rubber estate is a commercial undertaking. If a system has proved itself over a period of 25 or 30 years as not too drastic, it is practical to adopt it, especially if the crop obtained is more abundant than by an unnecessarily mild system. One thing that has favored the alternate daily and the alternate cycle systems in these more recent days is unquestionably the problem of labor.

There is a constantly growing desire among the native elements in the Orient and in other parts of the world to enjoy more of the comforts of our material civilization. To do this requires money. Hence has come a demand for increased pay for services rendered. This has been felt on the rubber plantations. Up to recently estates have preferred to supply their coolie labor with free rice or rice and other foods at cost or even at a loss, rather than actually increase their daily wage. But this loss could not be carried indefinitely. Consequently the economies in labor and other expenses made possible by alternate day tapping and by the alternate monthly cycle systems made a universal appeal through Malaya. In Sumatra and Java contract labor is less difficult but no less costly. So we see today more estates emphasizing the advantages of milder systems of tapping, which in effect reduce the labor force by nearly half. Of course the investigation ot Brown-bast disease has served notice on planters that this disturbance is of physiologic origin and is always associated with a too drastic or too frequent excision of bark. But the labor problem has undoubtedly induced the adoption of the milder tapping systems. We believe they have come to stay.

The Alternation Period Systems

ALTERNATE DAILY OR DAILY WITH ROTATIONAL ANNUAL REST FOR 25 PER CENT OF TREES—½ SPIRAL OR V CUT

Tapping Cycle	Bark	Height from Tree Base—1st Half Inches	Height from Tree Base—2d Half Inches
1st	Virgin	20	26
2nd	1st Renewal	38	38
3rd	Renewal	38	38
4th	Renewal	38	38
5th	Renewal	38	38
6th	Renewal	38	38
Total bark consumption		210	216

At the rate of 1 inch per month, consumption will give 33 years continuous tapping after allowing 2 inches for cup. At the rate of ¾ inch bark consumption per month, alternate day tapping, we get a total of 44 years continuous tapping. This comes within our estimate of 35 to 45 years as economic life of a rubber tree.

The Rotational ¼ Rest System

The rotational ¼ rest system may be used whether alternate day or daily tapping is the practice. By means of it, the estate rests 25 per cent of its trees for one quarter of the year and taps the remaining 75 per cent. The period chosen for resting takes in the time of the annual leaf fall. The rest is given to definite sections or divisions and not to trees chosen in different areas. This makes it systematic and easy to control. All cups, spouts and cup hangers are removed from the area during the rest. During the period of 4 years the whole estate will have benefited from a rest.

Tapping every day for 3, 4 or 6 months and resting for a like period is done on a spiral or V ½ circumference cut. The whole estate or one-half the estate can be included in the rest and tapping periods. Where labor is employed in other occupations as in growing rice or other seasonal crop, and available to the estate for only a part of the year, this system has its advantages.

Other systems of periodic tapping can be worked out by each estate. The advantages in savings on tools, labor and vitality of the trees are evident. It is safe to say that nearly all the leading estates have come to the conclusion that it is beneficial in every way to have some section of the estate resting every year; also that in all new openings, care will be exercised not to bring the new plantings into bearing before they have reached a girth not less than 22 to 24 inches at 36 inches from the ground.

Tapping Tools

These will vary with the type of labor, or with the practice of the country. In Malaya the gouge, much like a narrow carpenter's chisel, is used by Tamils, while the "Jebong," a type of farrier's knife, is preferred by Javanese, Malays and Chinese. The Jebong requires a "pull" whereas the gouge requires a "push" in cutting into the bark. Good work can be done with either type. Estate supply houses can furnish these at small cost. Tools should be kept clean and sharp at all times.

Labor Tasks

Topography has a lot to do with the size of the tapping task. On flat or gently undulating ground one tapper can tap and collect with a task of 400 trees. On steep and stony slopes this may have to be reduced to 200 to 300 trees. Each tapper should be made to collect his scrap rubber separately and to clean his spouts and cups every day if the latter are of aluminum and at least once a week if the cups are of glass or porcelain. His collecting can should be scoured every day after its contents have been emptied at the factory.

Rubber Solves Baseball Problem

The lively ball has been a subject of much controversy in professional baseball circles during the last few years. It has been claimed that the increased liveliness of the sphere has been responsible for the more free hitting games and the smashing of former home run records.

Despite reports to the contrary, the baseballs used in the big leagues have not been deadened this year; but an improved center construction has been adopted which gives a more perfectly bal-

Reach Cork and Rubber Center Baseball

anced center and makes the ball retain its life for a longer period. This has been accomplished by the use of rubber.

The official American League ball manufactured by A. J. Reach Co., has for years had a cork and rubber center, that is a rubber center with a cork core. This has been improved by incasing the cork core with semi-vulcanized rubber, and then vulcanizing another layer of rubber around the cork and rubber casing. The result is that the new center is perfectly balanced.

This change has not, however, effected the liveliness of the ball. This is something which is never tampered with, as the baseball clubs prescribe what they want on this point, and the baseballs are manufactured to their specification.

AMERICAN EXPORTS OF TIRE FABRIC

According to statistics prepared by the Bureau of Foreign and Domestic Commerce, the United States exports during October of tire fabric went almost entirely to two countries, as follows: Canada, importing 22,933 square yards of cord tire fabric, value $11,467; 58,520 square yards of other tire fabric, value $13,951; and Australia, taking 104,064 square yards of cord tire fabric, value $53,655; and 24,820 square yards of other tire fabric, value $9,629.

Cause and Effect of Hand-to-Mouth Buying

"HAND-TO-MOUTH BUYING," which is a catch phrase describing present day practice in the retail, wholesale, and manufacturing fields of buying only such materials and merchandise as are actually needed to fill customer's requirements, is prevalent in the rubber trade today as it is in all industry. Many business men, particularly venders, decry this practice as an evil. But looking at the question from a broad angle, this policy cannot be construed in any other light than as ideal business practice.

In the ideal factory, operated one hundred per cent efficiently—a condition which all manufacturing plants strive to attain yet never reach—the raw material would be received at one door every morning, and the finished product would emerge from the other at night, where the sale would be made, and the goods paid for in cash. This condition presents the ideal because the shorter the span from raw to finished product, the lower the cost.

This brings us to a few general truths which must be constantly kept in mind when considering manufacturing operations. First, the less money there is tied up in raw and processed material, the less capital is necessary to finance the business. Lower bank borrowings mean savings in interest charges which are sizeable. Second, the less time it takes for the product to go through the plant, the shorter the period of time to realize the profit. No business transaction is complete until the goods are sold and stay sold. Third, shorter production schedules and lower inventories reduce waste due to materials becoming obsolete, and permit the mill to meet new style trends and get new products on the market ahead of competitors.

Thus, business of today has been geared to new speed standards. The freight embargoes of 1920 and the huge inventories necessary as a result of rising markets, have all disappeared as our transportation systems and manufacturing plants are meetmg new standards of service. Out of all this has come hand-to-mouth buying, which is a sign of healthy business conditions and has come to stay. It permits factories to run on lower inventories and with less capital, to meet new exigencies promptly, and avoid depreciation on raw and processed materials.

Formerly the problem in the factory was to be sure to have enough material on hand. True, when production is halted for the want of material, the loss is terrific compared with the expense of carrying a sizeable stock. But why permit the lesser of two evils, when both can be eliminated? Today the problem is to keep the factory supplied with every material needed, and yet maintain a lower inventory. This requires scientific industrial planning to maintain the proper level of supplies and to have just enough and no more.

Ralph D. Berry, purchasing agent of the Davol Rubber Co., Providence, Rhode Island, at a District Convention of the New England Purchasing Agents' Association traced the cause and effect of the new buying policy in very sound economic logic. We quote in part:

The discussion of right price buying would be incomplete without reference to the policy of hand-to-mouth buying, and its effect upon prices as compared with the old methods of making purchases. American business got into the habit quite a number of years ago—and a costly habit too—of buying excessively ahead, of building up large inventories. This practice of buying more than was needed, and figuring interest charges on investment and depreciation on goods over and above actual requirements, was costing this country a hundred million yearly. The reason for this buying tendency is quite apparent. The practice of purchasing more than we actually need is handed down to us from preceding business generations, and is based on the theory that the purchasing agent is a shrewd guesser who can make a speculative profit to be added to the regular profit.

Another factor influential in the old theory of buying excessively ahead was the position and trend of the business cycle. Let us go back to the year 1896-1897 when prices turned upward from a thirty-year decline after the Civil War. The tendency to gamble on inventories grew up during this period while prices were rising steadily, and the buyer who kept goods in his warehouse made a profit on them by keeping them. Profits on inventories come in a rising market when demand is active and business is good. Fundamental conditions, however, did not promise a continuation of this rising trend, and in the year 1920 the peak was reached after a rise that lasted a little over twenty years.

Buying on speculation has no logical place in the category of the modern purchasing agent. If a man can anticipate price changes accurately and consistently, there is no reason for his being a purchasing agent as he could make more money buying and selling for himself. Even if he is right most of the time, the fact that he has foreseen a turn and taken advantage of it works directly against his being able to come out a definite winner. We have the same psychological handicap here that is evident in every attempt to beat the stock market on day to day trading. An accurate guess and an easy profit give the operator more confidence in his ability to outwit the market. A second win convinces him that he has discovered a great secret. He takes heart, and plunges for a third time. If he wins again, it is safe to assume that his usefulness is ruined so far as the economic world is concerned. As his confidence mounts he increases the stakes and takes longer and longer chances. Finally he makes a mistake, and the profits of half a dozen right guesses are wiped out.

It is not necessary to go back many years to see the disastrous effects of this speculative inventory program in general business. The rising prices of the past war boom showed consistent inventory profits and encouraged buying ahead both for protection and for the promised profit. The purchasing agent tried it, and found that it worked. As the boom got under way he built up larger inventories, paper profits climbed daily and in many cases the purchasing agent was apparently making more money for the concern than all the rest of the organization put together. Then the bubble burst, and prices tobogganed. Paper profits and expected profits became very real losses and business faced the task of paying huge bank loans.

The purchasing agent is not a speculator and should not be allowed to attempt to make speculative profits. It is his business to study the needs of the production department and plan to supply them continuously without surplus or excess stock. It is the appreciation of these facts that has led to the wave of hand-to-mouth buying evidenced these last four years.

Many manufacturers are protesting against the new era, as salesmen who formerly sold a year's supply on a single visit cannot now book orders for more than two months' needs, and therefore do not pay travelling expenses. This may be true perhaps, but results will have to be judged by the year and not on a single order. The manufacturer who is used to doing business the old way may not like it, but he will have to change his methods or see his trade go to some more forward looking concern willing to sell and deliver goods as a customer wants them. The more progressive business men have come to see that it is foolish to buy more than they need and that it is more profitable to reorder frequently than it is to buy ahead. Adequate sources of supply, improved freight service by rail and truck, and downward price trend favor the hand-to-mouth buying, which insures buying at right prices, and this program is here to stay for a considerable period ahead.

Those concerns who supply rubber manufacturers with raw materials are prepared to meet this hand-to-mouth demand and have equipped their business accordingly. Stocks of various compounding ingredients such as carbon black, lithopone, zinc oxide, colors, etc., are carried in the various manufacturing districts to keep the manufacturers supplied as they need them. Cotton fabrics are not warehoused generally as there is such a wide variation of constructions. But venders cooperate by increasing or decreasing shipments as required so that the rubber manufacturer can keep his stock at minimum.

Probably the greatest strides in reduction of inventories have been made by the automotive industries. Here the raw material structure is so highly organized that factories carry but two or three days' supply at a time, and materials are routed immediately to point of use, and do away with the central store room entirely. When operations are curtailed on sudden notice, a batch of telegrams is sent to the venders instructing them to cease shipments until further notice. This possibly complicates the vender's problem, but they are well schooled in the practice now, and the rubber manufacturers might well take a leaf out of General Motors', Hudson's or Ford's books on how to keep down inventories to the lowest figure.

Rubber Specialties for Morticians

Proofed Fabric Goods—Pure Gum and Compound Gloves and Tubing—Rope-Edge Floor Mats—Bulb Syringes—Casket Covers and Carriers

JUST as rubber is of much service to those who aid our entry into the world, so, too, does it come in very handy for those who stand ready to aid just as we have made our exit, the members of an ancient profession who are now euphemistically termed morticians.

Familiar as most people are with the thousand and one other uses of rubber, they seem to be but little informed as to the many ways in which it serves those whose task it is to make decent disposition of mortal remains. To a degree such lack of knowledge may be easily accounted for. The last men to be of service to us are constrained by custom and sentiment from seeking business or displaying their wares. As they are supposed to maintain a reserved demeanor, it is not surprising that outsiders should know but comparatively little of the tools and materials of the craft. Yet the entire value of such mortuary manufactures, in which but a few rubber factories specialize, makes a very considerable total.

When a body is to be taken to a mortician's establishment for burial preparation it is cloaked with a special rubber sheeting. Such material, in the better grades, is strong yet very pliable and has a coating of fine rubber compound that is resistant to boiling and strong chemicals used for sterilizing. The coating is either single or double (both sides), of white or maroon shade, and the sheeting varies in width from 36 to 54 inches. Similar material is used for covering the table on which a body is washed.

Much use of rubber is made in the process of embalming. When a body is placed on the rubber sheet covering the operating stand it must be fitted with a body protector to safeguard the operator, especially in artery work. Such a protector is a sleeveless coat-like garment but put on in reverse to cover the front rather than the back of a body. It is essential that the rubberized material be acid proof and capable of standing steam and corrosive substances without injury. The protector usually has a high banded collar of pure rubber and the openings for the arms are shirred so as to grip the latter tightly near the shoulders. The preferred color is maroon and the customary size is 36 by 36 inches.

When the head is placed on a pillow the latter is protected with a fabric cover single or double coated with an acid resistant rubber compound. The covers are either white or maroon and come in the domestic size, 16 by 24 inches, or ambulance size, 21 by 27 inches.

An embalming operator, usually rubber-shod, takes the precaution to stand on a rubber floor mat of special type. Such a mat is of acid-proof sheeting, double coated, maroon colored, reinforced, and having a one-quarter inch rope edging to keep dripping or splashed fluids from running over the floor. The mats range in size from a yard square to 4 by 8 feet.

An important article, too, is the utility apron made of reversible double coated, acid-proof rubberized heavy sheeting, white or maroon, covering the front and sides of the operator from neck to knees, and having an adjustable fastening at the back and about the neck. It is intended to stand much boiling or other sterilizing, and comes usually in four sizes, 24 by 36, 30 by 36, 32 by 42, and 36 by 48 inches. An apron specially designed for embalming and post mortem work, having several instrument pockets above the waist line, is made of material similar to that used for utility aprons, but instead of using supporting straps about the neck the material is extended over the shoulders and the apron fastened only in the back. It is usually made in two sizes, 32 by 42 and 32 by 48 inches.

Embalmers use both straight finger and knuckle fitting gloves. In pure gum dipped gloves the finish is either smooth or pebbled and sizes range from 6 to 9½, while in the compounded rubber hand protectors, usually made in maroon shade, the sizes range from 7 to 9.

For extracting body fluids and for the injection of the arsenical or other embalming chemicals various kinds and sizes of rubber tubing are employed. The tubing may be of pure gum or white rubber, both sorts being cloth wrapped, or of plain red rubber, and the bore ranges from ⅛ to ½ inch, depending upon the airline, aspirating, or drainage requirements. Bulb syringes are also indispensable. They are nearly always quite large, of red rubber, and have a valve.

Caskets in show rooms must be safeguarded from dust, dampness, and defacing. For this purpose nothing has been found equal to the covers made of light, non-cracking, rubberized sateen. Such covers, designed to be reversible, are made in navy blue and maroon shades, and have double needle-lap stitched seams to make them extra waterproof. They are bowed at the corners to fit snugly, and, being banded at the bottom with pure gum rubber, snap under the casket, thus securely gripping and protecting it. Adult sizes range from 6 feet to 6 feet 9 inches and children's from 2 to 5 feet.

Casket covers suited for the show room or which may be put over a casket in conveying it to and from a hearse in stormy weather are made similar to the others except that they fit flush with the bottom of the casket and have black tape ties at each end.

Mention might also be made of another rubberized article used by morticians, the metal frame or casket carrier which relieves pallbearers of their burden at church funerals. Such carriers are provided not only with four solid rubber tired wheels but rubber is also used to cover the top of the carrier on which the casket rests. Nor need it be added that rubber tired vehicles finally convey both the departed and the mourners to the last resting place of the deceased.

Thus it is when man begins this earthly cycle his infant needs and safety are sustained by rubber, and in some form it follows him like a faithful servant through life and even to the grave.

JAPANESE WAREHOUSED STOCKS OF RUBBER AND RUBBER MANUfactures rose, according to *Commerce Reports*, from a value in September of 8,800,000 yen to 11,300,000 yen for October.

American Rubber Technologists

Research Chemists

JOHN M. BIERER, *b.* Cedarville, Va., Mar. 3, 1888. B.A. (Washington and Lee) 1910. S.B. (M. I. T.) 1911. Chief chemist, Boston Woven Hose & Rubber Co., Cambridge, Mass., 1912; technical superintendent 1916; invented an air cure for fruit jar rings; manufactured the first crimson antimony produced in the United States; originated and developed the oxygen bomb method for aging vulcanized rubber; conducted research on the use of reclaimed rubber in the most economic manner; as chairman of the Rubber Division of the American Chemical Society, originated and led at Philadelphia, Pa., 1926, International Symposium on Raw Rubber; author of papers on oxygen bomb method of accelerated aging and reclaimed rubber as a substitute for crude rubber; member Rubber Association specifications committee for mechanical rubber goods; member American Society for Testing Materials; thirty-second degree Mason and a Shriner. Address: Boston Woven Hose & Rubber Co., Cambridge, Mass.

THE rubber industry has long been guided in its development by the results of chemical and engineering research.

THE INDIA RUBBER WORLD *plans to record the names, academic attainments and scientific and technical accomplishments of American rubber technologists.*

The personnel will comprise research chemists, physicists, analysts, chemical, electrical, mechanical, process and production engineers, and technical superintendents.

Albert A. Somerville, Ph.D., *b.* Milroy, Ind., 1883. A.B. (De Pauw University) 1905. Illinois University, 1906. Ph.D. (Cornell University) 1910. Bureau of Standards, 1911; chief physicist India Rubber Co., New Brunswick, N. J., 1912; development department United States Rubber Co., New York, N. Y., 1913; technical assistant to general manager United States Rubber Mechanical Goods System, 1918; represented United States Rubber Co. on War Service Committee in cooperation with the United States Navy Department; sales manager R. T. Vanderbilt Co., 1919, vice president 1920; member American Society for Testing Materials, American Chemical Society, American Physical Society, and Masonic organizations. Clubs: Cornell, D. K. E., Flushing Old Country, Gypsy Trail, Quogue Field and Beach. Address: R. T. Vanderbilt Co., 50 East 42nd street, New York, N. Y.

Herbert A. Winklemann, Ph.D., *b.* Appleton, Wis., May 3, 1893. B.S. (Northwestern University) 1914. M.S and Ph.D. (University of Illinois) 1915, 1919. Director chemical laboratory, Lakehurst Proving Ground, 1917-1919; captain, Chemical Warfare Service; research chemist, The B. F. Goodrich Co., Akron, O., 1919; specialist on accelerators of vulcanization and anti-oxidants; manager production laboratory on tire development, tire compounding; technical superintendent, tire division; director of laboratories, Philadelphia Rubber Works Co., Akron, O., 1926; inventor of an anti-oxidant for rubber; coauthor with Clayton W. Bedford of "Systematic Survey of Rubber Chemistry," 1924; member Alpha Chi Sigma, Sigma Xi, Acacia, American Chemical Society; a Mason. Address: Philadelphia Rubber Works Co., Akron, Ohio.

William B. Wiegand, *b.* Ontario, Canada, Feb. 17, 1889. B.A. Chemistry 1912, M.A. Physics 1913 (University Toronto); physicist C.G.S. "Arctic" voyage to Hudson's Strait and Bay 1912; general technical superintendent Canadian Consolidated Rubber Co., Montreal, Canada, 1918; vice president and general manager Ames, Holden, McCready, Ltd., Montreal, 1922-23; vice president and general manager Ames, Holden Tire & Rubber Co., Kitchener, Can., 1923-25; consulting chemist Binney & Smith Co., New York, N. Y., 1925; author of many papers on rubber technology; established basic principles of pigment reinforcement; has written extensively on the energy and thermodynamical properties of rubber (resilient energy criterion, Joule effect, rubber heat engine); member Society of Chemical Industry; fellow Institution of the Rubber Industry, London; fellow Canadian Institute of Chemistry. Clubs: Chemists, Lotos, New York, N. Y. Address: Binney & Smith Co., 41 East 42nd St., New York City.

James Walter Schade, *b.* Brooklyn, N. Y., 1882, A.B. (Cornell) 1904. Analytical chemist, J. T. Baker Chemical Co., Phillipsburg, N. J., 1904; chemical and manufacturing departments The B. F. Goodrich Co., Akron, Ohio, 1909, as follows: chemical laboratory and compounding work for all departments, 1909-1913; compounding and construction of footwear, 1913-1919; manager compounding and production footwear department, 1919-1922; director of production laboratories in charge of all testing and compounding, 1922-1925; director of laboratories, research and control, 1925. Address: 189 Merriman Road, Akron, Ohio.

William James Kelly, *b.* Boston, Mass., Jan. 18, 1888. Boston public schools. S.B. (M. I. T.) 1909. Ph.D. (University of Leipzig, Germany) 1913. Research chemist with United States Rubber Co., 1913; Standard Oil Co. of N. Y., 1914; Goodyear Tire & Rubber Co., Akron, Ohio, 1918. Published researches on true free sulphur determination, vulcanization and determination of particle size measurement and distribution; member, American Chemical Society. Clubs: Akron University, Portage Country, Akron, Ohio. Address: The Goodyear Tire & Rubber Co., Akron, Ohio.

Harry Linn Fisher, *b.* Kingston, N. Y., Jan. 19, 1885. B.A. (Williams) 1909. M. A. (Columbia University), 1910. Ph.D. (Columbia University) 1912. Asst. Organic Chemistry, Columbia, 1910; instructor chemistry, Cornell Medical College, New York, N. Y., 1911; instructor organic chemistry, Columbia University, 1912; research chemist, The B. F. Goodrich Co., Akron, Ohio, 1919; research chemist, U. S. Rubber Co., New York, N. Y., 1926; author, "Laboratory Manual of Organic Chemistry," 1920, and papers on organic chemistry and chemistry of rubber; patented several chemical processes, an organic vulcanization accelerator, nitrated rubber and methods of ionizing rubber, the basis of the Vulcalock process; secretary Organic Section, Eighth International Congress of Applied Chemistry, New York, N. Y., 1912; member Phi Beta Kappa; Sigma Xi; Phi Lambda Upsilon; American Chemical Society; secretary Organic Section, 1915-1919; chairman, Akron Section, 1925; vice-chairman, Rubber Division, 1926-1927. Address: United States Rubber Co., 561 West 58th street, New York, N. Y.

Donald F. Cranor, *b.* Wilmington, Del., 1890. B.S. (University of Pa.) 1912. Ch. chemist, Lee Tire & Rubber Co., Conshohocken, Pa., 1912 to 1918; assistant superintendent, 1918 to 1923; technical superintendent, Lee Tire & Rubber Co., and Republic Rubber Co., 1923; research and development department, Binney & Smith Co., 1924 to date; published researches on "Effect of Organic Accelerators on the Vulcanization Coefficient," 1919; "The Effect of Pigments on the Temperature of Tires During Service," 1922; "The Actual Temperature of Tires During Vulcanization," 1923; "A Technical Comparison of Modern Rubber Reinforcing Materials," 1925. Member American Chemical Society; American Society for Testing Materials; Society of Chemical Industry. Address: Binney & Smith Co., 41 East 42d Street, New York, N. Y.

Carl Stuart Williams, *b.* Cleveland, O., 1886. Case School Applied Science, 1910. B. S. (Ohio State University), 1913. Chemist, general laboratories, United States Rubber Co., 1913; chemist, Perth Amboy Chemical Works, Roessler & Hasslacher Chemical Co., Perth Amboy, N. J., 1915; assistant manager and director, rubber service and rubber research department; developed testing machine attachment for recording stress-strain curves; developed and patented use of mono phenyl guanidine; invented various chemical process patents and rubber dipped goods machinery; first to make public exhaustive information on the action of hexa. aldehyde ammonia and formaldehyde aniline under various conditions; member, American Chemical Society, Institute Rubber Industry, London, New Jersey Chemical Society, Kappa Tau Phi since changed to Sigma Chi. Address: Roessler & Hasslacher Chemical Co., Perth Amboy, N. J.

What the Rubber Chemists Are Doing

AT the Congress of Chemists held at Hotel Great Central, London, July 19 to 24, 1926, the Institution of the Rubber Industry with the Oil and Colour Chemists' Association was responsible for a discussion on "The Influence of Particle Size in the Paint and Rubber Industries." The papers contributed are extremely valuable for the rubber chemist and compounder. Excerpts from two of these papers are given below.

The Influence of Particle Size in Rubber Manufacture

S. S. Pickles

The importance of the bearing of particle size on chemical activity lies chiefly in the fact that in most rubber mixings, during the process of vulcanization, the mass has the consistency of a solid, or at the best, of a very viscous medium, in which the mobility of the reacting elements or groups is of a very restricted order. There can thus be nothing like the condition which we have in a chemical reaction taking place between two liquids or materials in liquid solution, where there are ions possessing high mobility, and where it is almost impossible for local concentration to persist for any prolonged period. In such cases homogeneity is quickly established, the reaction proceeds in accordance with well-known principles, and the results can be forecast from a knowledge of the laws of mass action.

Reaction in Solids

In reactions in solid or viscous media the amount of reactive particle surface and the proximity of the reactants are the main considerations rather than the concentration. It is therefore obvious that the smaller the particles and the more uniform their dispersion, the closer will be the approximation to the conditions necessary for rapid and complete reaction. With regard to the influence of particle size on pigmentary properties, so far as rubber manufacture is concerned, it does not seem at the present moment that any satisfactory generalization can be made. Judged by the commonly used tests for covering or obscuring power, apparent anomalies are frequently encountered.

The very finely divided zinc oxide (Kadox) does not, so far as the writer's experience goes, give results equal in this respect to the standard grades, having larger particles. There is possibly a limiting size below which it is inadvisable to go, depending perhaps on the ratio of particle size and wave lengths of light. In the case of carbon blacks, if we compare American gas blacks with acetylene black, although the two may give similar physical effects in rubber compounds, and may therefore be presumed to have similar sized particles, their tinctorial powers differ considerably, the gas-black often possessing twice the covering or obscuring power of the acetylene black.

Reinforcement

It is when one approaches those physical properties, tensile strength and toughening, or as it has been termed, reinforcement, that the influence of particle size and shape assumes the greatest interest and importance for the rubber manufacturer. The rough generalization can be made that the smaller the particles of a pigment, the greater is its reinforcing power. But when we compare one pigment with another, or, in the case of carbon blacks, one variety with another, we encounter exceptions which are difficult to account for.

For example, it is difficult to explain why lithopone having an average particle size of 0.3 to 0.4 mu, should have little or no reinforcing value, although zinc oxide, with slightly greater average sized particle, is one of the most powerful mineral pigments in this respect.

Grain Effects

In considering the physical effects of pigment particles, other factors than size must be taken into account, such as particle shape and the degree of wetting of the particles by the rubber. The shape of the particles is probably responsible for many of the physical characters of the manufactured product. The well-known "grain" effects are mainly due to the anisotropic crystalline structure of mineral particles used in compounding. The difference between the effects of gas black and the so-called thermatomic carbon, the former of which gives tough strong rubbers, while the latter yields softer and more extensible products, has been stated to be due not so much to differences of particle size as to the fact that the gas black particles have deeply serrated or prickly surfaces, while those of the thermatomic carbon are said to be smooth and spherical.

Wetting

The extent of the so-called wetting of the particles by the rubber is another factor responsible for differences in effects produced by pigments, since the more effective the wetting, the more complete is the dispersion, in other words, the less tendency there is to aggregation during the compounding stage. Zinc oxide is wet fairly readily by rubber, and so disperses satisfactorily even in large quantities. The gas blacks are less easily wet, and aggregation of the particle is liable to occur when certain proportional limits are exceeded. The wetting property of carbon blacks is, according to H. Green, also a determining factor in connection with the phenomenon known as flocculation. This is the tendency of fine particles, which have once been dispersed, to form floccular groupings during the vulcanization process. High surface attraction between rubber and pigment particles tends to check this movement.

A study of the way in which mixtures of different pigments affect the physical properties of rubber, and the unexpected modifications produced on varying the relative proportions, show that it is unsafe to assume that any simple ratio exists between their actual combined influence and the mean values calculated from a knowledge of their separate effects.

Particle Shape

Philip Schidrowitz

Dr. Schidrowitz discussed some of the principal publications[1] bearing on the particle shape problem, and took up the cause of the tearing effect as follows:

I may mention a few facts, within my own cognizance and experience, which bear directly on the view that the tearing effect is due to alinement, in the rubber mass, of anisotropic fillers or more particularly of those which may be described as "laminated crystals." If this view is correct it would follow that any method which distributes the particles of such fillers in a heterogeneous manner throughout the rubber, would result in the formation after vulcanization of a non-laminating or non-tearing compound. The ordinary operations of mixing and sheeting on the mill and of calendering are such that alinement is likely to ensue, and taking, for instance, a rubber clay mix, such processes do produce compounds in which lamination is pronounced. If, however, such a mixing, say a tire tread compound, is extruded the tearing effect is much reduced, and in this regard the mix then becomes similar to mixes with isotropic fillers. In the same way, if we use, instead of the ordinary mixing mill, one of the enclosed type, in which

[1]Poisson's Ratio and Related Properties of Compounded Rubber. W. W. Vogt and R. D. Evans, *Industrial & Engineering Chemistry*, 1923, 15, 1015; Factors Determining the Reinforcing Value of Fillers in Compounded Rubber. H. A. Endres, *Industrial & Engineering Chemistry*, 1924, 16, 1148.

mixing is carried out not by means of parallel rolls, but by an operation which causes simultaneous churning and crushing or squeezing of the mass, the lamination effect is again much reduced or becomes insignificant.

Further direct evidence that the alinement of the particles of an anisotropic filler is responsible for the tearing effect was obtained by examining a mixing under such conditions that heterogeneous distribution of the particles was bound to ensue. With this end in view, a suspension was made of colloidal clay in vulcanized rubber latex, and the suspension then sprayed. The sprayed product, a dry powdery mass, was packed in a disk mold, compressed and heated. It was found that the disks so obtained were, for all practical purposes, non-tearing.

An Efficient Extractive Solvent

The chemical and physical properties, synthesis, chemical stability, and industrial applications of ethylene dichloride have been thoroughly investigated at Mellon Institute of Industrial Research of the University of Pittsburgh. The information that follows has been supplied by the Industrial Fellowship that has lately completed studies of the new olefine industry.

Ethylene dichloride is a colorless liquid of pleasant chloroform-like odor, which has the following physical properties: boiling-point, 83.5 degrees C. at 760 mm.; melting-point,—36 degrees C., density 20.4 degrees C., 1.2569; specific heat, 0.3054 at 30 degrees C.; latent heat of evaporation, 157.5 B. t. u. per pound at 0 degrees C.

Ethylene dichloride has high solvent action on oils and fats (such as lard, cocoa butter, butter, stearic acid, peanut oil, corn oil, etc.), waxes, wool grease, and certain alkaloids, gums, resins, and rubber. It may be used in the cleaning or degreasing of furs. Its solvent action is superior to that of the better known extraction agents, and it is extremely stable in the presence of water alkalies or acids. It may be used in the presence of free chlorine, sulphuryl chloride, sulphur monochloride and other active reagents without being affected. Being quite resistant to oxidation it does not split off hydrochloric acid and produce oxidized products, as does chloroform or carbon tetrachloride; hence it may be reused or stored indefinitely. It does not corrode metals even in the presence of water at the boiling-point, and having low specific heat, density and latent heat, it may be recovered easily and economically. At ordinary temperatures, it will burn only with difficulty. This tendency is so weak that, when ignited, the draft of combustion will blow out the flame. It has some anesthetic properties, although its vapors must be inhaled in concentrated form over an extended period to produce an anesthetic effect. It causes no deleterious heart depression and produces no serious after-effects.

Since ethylene dichloride may now be obtained in the pure state at reasonable cost, it is well adapted to the extraction of edible oils, as its low boiling-point, 83.5 degrees C., permits its easy recovery without leaving heavy ends or residues in the extract.

Free Carbon in Vulcanized Rubber

E. Kahane

A 1-gram sample of vulcanized rubber, cut fine, is treated with 6 to 8 cc. of fuming nitric acid in a small glass beaker. The acid should be added cautiously to avoid the danger of spontaneous ignition. When the reaction has subsided the contents of the beaker are boiled for five minutes, diluted with water to a total volume of 50 cc., and again brought to boiling. The beaker is then transferred to a water bath and contents allowed to settle until the clear liquid can be decanted from the sediment. A Gooch crucible is fitted on a vacuum flask of usual type: The perforated bottom of the filter is covered with a layer of filter paper. In the course of the estimation three small circles of filter paper are needed, two for the bottom of the Gooch filter. The contents of the beaker are transferred to the filter by the help of warm dilute nitric acid and washed with it until the filtrate comes through colorless. Then several washes are given with a solution made by mixing 2 cc. of glacial acetic acid and 5 cc. of concentrated ammonia solution with 22 cc. of boiling water. The filtrate should again be colorless. The compact material on the filter paper is transferred to the original beaker and heated to boiling for a few minutes with 5 cc. of fuming nitric acid and the operations described in the first stage are repeated.

The washing with the ammoniacal ammonium acetate solution is followed by one with use of dilute nitric acid and then with boiling water. It is important not to use the wash water directly after the ammoniacal wash otherwise a fine suspension of carbon is liable to be obtained which will pass through the filter. The filter and contents are dried for 2 hours at 120 degrees C. and cooled in a desiccator together with the third circle of filter paper. The separate weights of filter and the paper are determined.

The filter is next transferred to a muffle and gradually raised to a dull red heat. In this operation it is advisable to place the filter crucible within a larger one, the weight of which is known. By this means breakage and loss may be avoided. After cooling, the filter crucible is again weighed. The difference between the weights before and after ignition represents 110 per cent of the amount of free carbon in the rubber sample treated.

This method, in samples of known composition, gives very practical results in agreement with the theoretical.

Rubber in Pressure Lubricants

In a recent paper, "Lubricants for Ground Glass Joints,"[1] a number of formulas are given for lubricants suited for use where chemical reagents are handled. Three classes of lubricants were developed, chemically inert, pressure lubricants and special lubricants. The second group is of interest because rubber is used in some of the formulas. The authors have the following to say regarding the preparation of these lubricants.

The following lubricants have good adhesive properties, but do not stand up quite so well in contact with strong chemical reagents. However, they are much more stable than the vaseline mixtures generally used.

(1) Parowax, heavy paraffin oil, latex crepe (2:5:1). Melt the Parowax on the steam bath and add the paraffin oil and latex crepe. Continue to stir and heat until all the solvent has been removed. The Parowax may be replaced with beeswax, ceresin, or lanolin if a heavier body is desirable.

(2) Heavy paraffin oil and latex crepe (3:4). Heat the paraffin oil and latex crepe with rapid stirring on a steam bath until the solvent is all removed. This gives a semifluid lubricant which stands up exceptionally well under heavy pressure.

(3) Beeswax and lanolin (1:2). Melt on a steam bath with constant stirring.

(4) Heavy paraffin oil and beeswax (1:1). Melt on the steam bath with thorough mixing until the mixture becomes chilled.

The latex crepe should be dissolved in a mixture of petroleum ether and benzene to form a heavy, viscous liquid before adding to the other constituents. This method gives a clear, homogeneous product without discoloration due to charring, which takes place when the solid latex is heated high enough to melt.

[1] M. J. Bradley and H. E. Wilson, *Industrial & Engineering Chemistry*, December, 1926, 1279-80.

Vulcanol—a New Semi-Ultra Accelerator

Vulcanol is the leading member of a group of organic sulphur-nitrogen compounds whose efficacy as accelerators was first discovered in the du Pont laboratories approximately two years ago. It bears no structural relationship to any previously known accelerator. In its physical characteristics it is similar to ordinary automobile lubricating oil but is not volatile even at temperatures

above those commonly employed for vulcanization. Like other oils it is very easily dispersed in rubber.

Unlike most other sulphur-containing accelerators, Vulcanol is quite inactive at temperatures below 230 degrees F. but is exceedingly active at temperatures above .240 degrees F. It is especially recommended for use in tires cured at low temperatures but is also advantageous in stocks vulcanized at steam pressures of 35 pounds and upward. Only very small percentages of Vulcanol are required in compounds cured at above 35 pounds steam pressure.

The accelerating effect of this accelerator is illustrated by the following formula: Smoked sheets 100, zinc oxide 5, sulphur 3, Vulcanol 1. This mixing may be cured properly at any one of the following cures; 60 minutes at 10 pounds steam; 30 minutes at 20 pounds, or 15 minutes at 30 pounds. When correctly cured its tensile strength is about 3,400 pounds per square inch.

An unusual feature is that the tensile strength of Vulcanol compounds increases when the curing time is extended considerably beyond the time required for a good cure. Vulcanization may be continued for periods several times as long as that required for the optimum cure without adversely affecting the physical properties of the product.

Chemical Patents

United States

1,607,331. PROCESS OF HEATING RUBBER. Subjecting rubber to the reaction product of ammonia and a sulphur halide, and vulcanizing the rubber.—Theodore Whittelsey, Ringoes, New Jersey and Charles E. Bradley Mishawaka, Indiana, assignors to The Naugatuck Chemical Co., Naugatuck, Connecticut.

1,607,585.—PROCESS OF TREATING RUBBER LATEX. Combining caoutchouc latex and casein by the addition to the latex of casein previously subjected to the action of a lime solution and effecting precipitation by addition of acid salt.—Arthur Biddle, Trenton, New Jersey, assignor to United Products Corporation of America, a corporation of Delaware.

1,607,730. INK. In an ink, a vehicle comprising rubber dissolved and combined with a drying oil and a rubber solvent having a boiling point approximately between 200 and 300 degrees C.—Howard W. Doughty, Amherst, Massachusetts, assignor to Alchemic Gold Co., Inc., New York, N. Y.

1,609,806 RUBBER COMPOSITION. The direct reaction product of nitric acid and rubber in solution.—Harry L. Fisher, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,610,216. ACCELERATOR. Harold W. Elley, assignor to E. I. du Pont de Nemours & Co., both of Wilmington, Delaware.

Reissues

16,476. Original number 1,437,487. CAOUTCHOUC COMPOSITION. A composition having adhesive properties comprising a mixture of caoutchouc latex, casein and an acid salt adapted to coagulate the mixture.—Arthur Biddle, Trenton, New Jersey, assignor to United Products Corporation of America, a corporation of Delaware.

16,477. Original number 1,437,487. CAOUTCHOUC COMPOSITION. A composition of matter having adhesive properties comprising caoutchouc latex, casein and ammonium carbonate.—Arthur Biddle, Trenton, New Jersey, assignor to United Products Corporation of America, a corporation of Delaware.

Dominion of Canada

265,778. PAPER MANUFACTURE. A composition consisting of fibrous pulp and a product obtained by macerating or digesting prewashed kelp in fresh water and containing a proportion of rubber.—George F. Blombery, Lance Cove, near Sidney, New South Wales.

265,841. MATCH TREATING COMPOSITION. A composition for waterproofing matches, including a mixture of beeswax, sealing wax, rubber cement and gasoline.—Henry D. Schmidt, Lake Alfred, Florida, U. S. A.

265,863. SHOE STIFFENER. In the treatment of a fabric for the manufacture of shoe stiffeners, a process which comprises impregnating the fabric with a rubber suspension, drying the fabric, and finally impregnating the rubberized fabric with a thermoplastic stiffening agent.—The Beckwith Box Toe Ltd., Sherbrooke, Quebec, assignee of C. E. Swett, Boston, Massachusetts, U. S. A.

266,235. BONDING RUBBER SURFACES. A process for bonding materials together which comprises applying a fluid composition containing latex, a hydrophil colloid, vulcanizing ingredients comprising zinc in combination, sulphur and a material containing carbon disulphide and an amine, separately to the surfaces to be joined together. Next allowing moisture to evaporate from the composition, then bringing the surfaces together, pressing and vulcanizing the composition.—Ernest Hopkinson, New York, N. Y.

266,291. WATERPROOF COMPOSITION. The method of making a waterproof compound by mixing a filler and aluminum resinate in dry form, dispersing the mixture in a water dispersion of glue. Then adding this mixing with rubber latex. The product is next added to a water dispersion of light spindle oil.—The Canadian Consolidated Rubber Co., Ltd., Montreal, assignee of A. F. Owen, Long Island, New York, U. S. A.

United Kingdom

257,285. ELECTRO-DEPOSITING MOLDING PROCESS. The invention relates to the production from latex by electrophoresis of homogeneous rubber deposits upon metallic bases and the elimination by various means of conditions that favor the evolution of gas at the anode.—Anode Rubber Co., Ltd., 15 Throgmorton avenue, London.

258,146. PUNCTURE COMPOSITION. A film forming composition comprising a mixture of 2½ ounces carrageen moss, 1 ounce agar-agar and 1 ounce of formalin dissolved in water is used in conjunction with a filling composition consisting of 15 parts rubber, 15 parts cork, 10 parts asbestos, and 60 parts mica.—A. W. Dickinson, 95 Auburn Road, Auburn, Victoria, Australia.

258,573. RUBBER COATINGS. A benzol rubber cement for application to metal, wood and fabrics. The cement may or may not contain sulphur and has added to it 0.5 per cent or more of asphaltum or other heavy hydrocarbon. It may be applied by brush or spraying, and is subjected to a dry heat of 250 to 500 degrees F.—R. M. Withycombe, Wyoming, Macquarie street, Sydney, Australia.

Germany

437,172 Method of producing rubber with a large number of microscopically tiny pores. Dr. Hermann Beckmann, Albertinenstrasse 26 Wannseebohn, Zehlendorf.

437,444 Method of vulcanizing rubber. The Naugatuck Chemical Co., Naugatuck, Connecticut, United States. Represented by Dr. K. Michaelis, Berlin W. 35.

France

612,708 Process for accelerating the vulcanization of artificial or natural rubber. Société J. G. Farbenindustrie A.-G.

613,040 New condensation products from aldehydes and amines, processes for preparing them and applying them to the vulcanization of substances with a rubber base. The Grasselli Chemical Co.

Italy

241,026 Process for producing unvulcanized rubber sheets and articles made therefrom. A. R. F. Van der Mark and H. Kreuer, Netherlands East Indies.

241,410 Process and additional masses for incorporating substances in dispersions, especially latices of rubber. The Anode Rubber Co., Ltd., London, England.

241,507 Superlastic materials. C. de Camillis, Rome.

STEAREX

Under the designations Stearex *A* and *B*, two grades of stearic acid are now available for rubber compounding. Stearex *A* is double pressed stearic acid and Stearex *B* is single pressed. Due to its oleic acid content Stearex *B* softens the uncured mixing somewhat more than Stearex *A* and is recommended for the general range of rubber compounds as a softener and activator of accelerators with zinc oxide.

WEISS D P G PATENT SUSTAINED

Among the many organic accelerators of vulcanization D P G ranks as one of the most important and popular employed in the rubber industry. Therefore great interest attaches to the legal status of the Weiss patent (United States patent No. 1,411,231, March 28, 1922) owned by the Dovan Chemical Co., New York, N. Y., who have been producing D P G commercially since May, 1920, by the Weiss process.

The validity of the Weiss patent was originally upheld in a decision handed down in January, 1923, in the District Court of New York in a suit brought by the Dovan Chemical Co. against the National Aniline Co. The latter company appealed and in May, 1923, the original decision was reversed by the New York Court of Appeals.

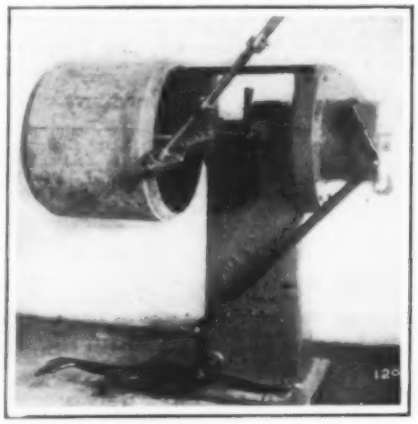
An appeal from the District Court of the United States for the Western District of Pennsylvania, Decision No. 3470, October Term 1926, has been rendered in favor of the Dovan Chemical Co. against the Corona Cord Tire Co., sustaining the validity of the Weiss patent. Two of the circuit judges agreed and one dissented.

The Court holds "That Weiss was the first to instruct the rubber art in this mode of rubber vulcanization and that up to his work the rubber art had made no use of D P G in vulcanization and no one had therefore disclosed to the art or instructed it how D P G could be practically produced or, of course, practically used."

New Machines and Appliances

Power Tire Building Stand

THE advantages of tire building by the drum method are enhanced by the facilities included in the power tire building stand here pictured. This machine is of very rugged design and is adaptable for tire building by any method where power is an advantage. The spindle operates up to 300 r.p.m. in either direction and is easily controlled by foot levers through a multiple disk clutch. The brake is of the type which affords very fast and smooth operation, while speed reduction is made through a composition pinion and gear running in an oil tight casing. All shafts are mounted on ball bearings and the entire lubricating system is automatic. A tray for the workman's tools is mounted across the top of the stand. The bead and stock gage-bar is adjustable and hinged to be applied to the work or turned back out of the way to suit the operator's convenience. The power for operating this building unit is supplied by an electric motor with safety oil reversing switch.

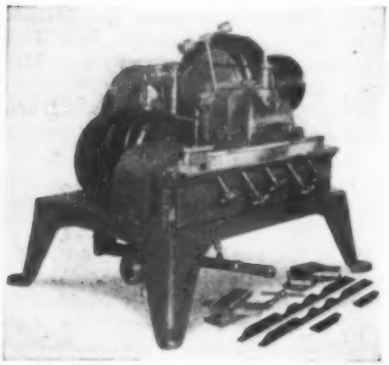


De Mattia Power Stand

The machine is a most compact and economical device for modern tire building and occupies only 28 by 39½ inches floor space.—De Mattia Brothers, Inc., Clifton, New Jersey.

Abrasion Testing Machine

An abrasion testing machine for rubber has been perfected after long experimental development in various rubber plant research laboratories. It is a very compact, electrically operated unit weighing 365 pounds and is designed for bench installation.



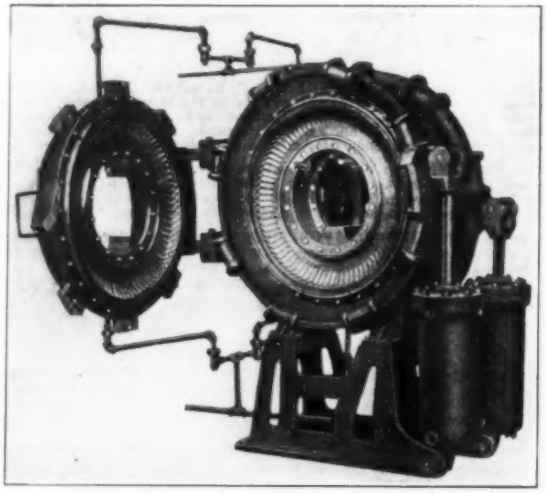
U. S. Rubber Abrasion Tester

The abrasive action is secured by a swiftly moving wheel upon the edge of which a strip of sand paper one inch wide is attached. The cutting surface is applied to ⅜-inch test samples measuring 2 by 3 or 2 by 5 supported in holders clamped to a traveling table. Several test samples may be tested at one time. The abrasive wheel is revolved against the direction of movement of the table and is reversed in rotation when the movement of the table changes. Mechanical means are provided to raise the wheel from the work as it passes from sample to sample. An exhaust blower removes all dust from the wheel and samples and a small revolving brush cleans the wheel thoroughly and prevents carrying particles from sample to sample. The pressure of the wheel on the samples is regulated by a small T shaped balance arm. A new strip of abrasive cloth is applied to the grinding wheel for each set of samples tested and the dust is completely removed so that it has no influence on the wear of the specimen.

This wear testing machine is capable of giving accurate results on many materials other than rubber for which it was originally designed by the General Laboratories of the United States Rubber Co.—Henry L. Scott Co., Providence, Rhode Island.

Power Watch Case Vulcanizer

In the double watch case tire vulcanizer here shown, a separate vertical power cylinder opens and closes each side. The cylinders are pivoted at the bottom to automatically compensate for the arc of travel of the locking rings. This permits the piston rods being directly connected to the rings without loss resulting from the angular pressure as in the case of rigid cylinders and connecting links. This design and pressure also insures closing pressure sufficient to prevent any rind on the tires. A deflector functions to force apart the mold halves and performs the stripping.



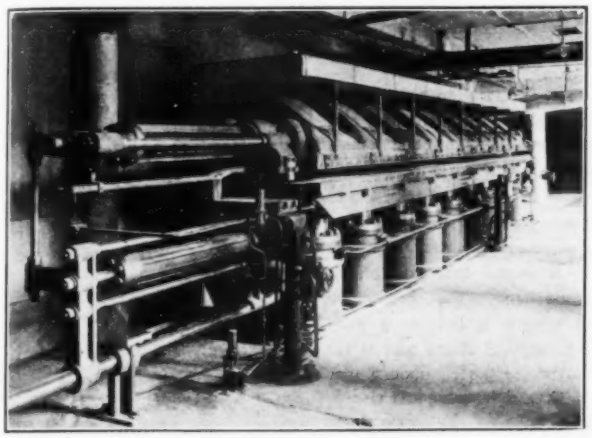
The Minute Man Tire Vulcanizer

All working parts are bushed and wearing surfaces protected by replaceable parts. The gaskets are located inside the bolt circles and their full area thus utilized. With this vulcanizer only 4 sizes are required to accommodate all sizes of tires from 27 by 4.40 to 34 by 7.30, including 3½ inch clincher.—The Akron Rubber Mold & Machine Co., Akron, Ohio.

Open Deck German Belting Press

An interesting hydraulic belt press installation in a German plant is shown in the illustration. This is a single opening press with bored, thin, steel steam platens bolted against massive cast supporting surfaces. The castings of the separate sections carrying the hydraulic cylinders are goose necked to carry the upper platen.

In the foreground is pictured the hydraulic mechanism for pulling the stretch out of the belting before the press closes upon it. With this device any stretch up to 15 per cent can be applied

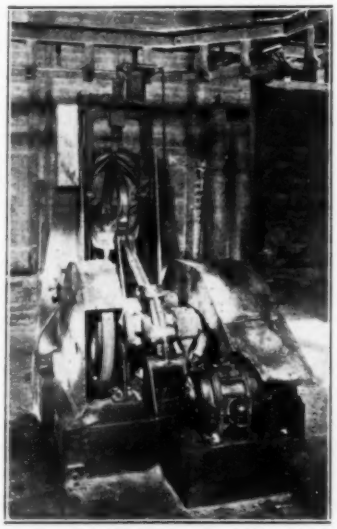


German Hydraulic Belting Press

to the belting. The press has a curing area of 10,000 m.m., and will take belts up to 750 m.m. (29½ inches) width.—Nienburger Machinenfabrik A. G., Nienburg am Saale, Germany.

Machine for Removing Airbags

Various power operated devices have been introduced for removing airbags from cured tires. The one here pictured, patented by Taylor & Desautel, is highly efficient. It is operated by one man and permits the quick and easy removal of the bag without injury. In fact, installed as here represented the machine is in continuous action.



Airbag Remover

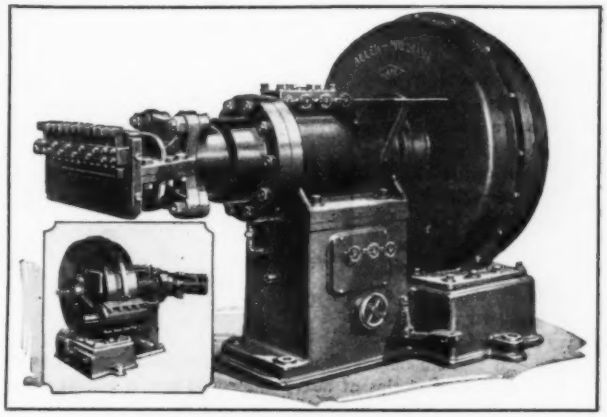
Tires containing bags come to it from the curing room by an overhead conveying system and bag removal is effected as follows: In the background of the picture, an operator would place a tire upon an upwardly curved saddle or rest. A pair of hooks seize the tire at the top and spread it away from the bag at that point. At the same time two pairs of hooks rise and grip and spread the tire beads at the saddle. The carcass thus spread below permits a long heavy hook to be inserted by the machine between the carcass and the airbag. The action of this hook raises or buckles the bag upward. In this position the operator seizes the bag, and with a sharp pull releases it from the point of the supporting hook and draws it downward from the upper half of the carcass.

The machine is electrically operated and the large releasing hook is given a slow steady upward scooping motion which lifts and separates the bag without injury to either bag or tire. While this machine is a Fisk Tire Co., Inc., development it is manufactured for the use of others in the industry.

Heavy Service Tubing Machine

Mass production requires handling large volumes of material uninterruptedly. In a tire plant this means installing a tubing machine of the capabilities claimed for the one here pictured. This machine was designed for extruding treads and sidewall rubber, or for tubing two tubes at one time with a special new tube head.

The stock worm speed is 50 to 100 r. p. m. The power consumption is low due to the ball bearing thrust which is designed for 200 per cent of the estimated maximum load. The variable



Allen-Williams Heavy Service Tuber

speed take off drive ranges from 13 r.p.m. at low motor speed to 108 r.p.m. at high motor speed figuring on a 500 to 1,000 variable speed motor.—Williams Foundry & Machine Co., Akron, Ohio.

Calender and Mill Roll Pyrometer

The importance of close regulation of the surface temperature of the rolls of mills and calenders has become increasingly important with the introduction of organic accelerators, and especially in using those characterized by low critical temperature.

Thwing Surface Pyrometer

The illustration pictures one form of surface pyrometer as arranged for taking the temperature of paper rolls. Such rolls are rather long and necessitate a 40-inch handle on the thermo couple. For use on rubber rolls a shorter length would be used.

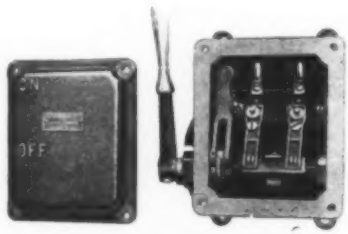
The instrument consists of a pair of sensitive thermo couples connected in series in a specially designed housing attached to the end of the handle that carries the leads to a portable temperature indicator. Since the thermo junctions must not contact with the rolls and produce heat by friction, they are supported in roller bearings so as to be exposed at a very near fixed distance to the roll surface. They are protected from injury by an open wire screen.

The instrument serves well for checking faulty circulation in a steam line and gives the necessary information for promptly cor-

recting the trouble. It is also provided with compensating leads and an adjustment for correcting any change in designs of the couples that may accidentally occur.—Thwing Instrument Co., 3339 Lancaster avenue, Philadelphia, Pennsylvania.

Watertight, Acid Resisting, Remote Control Station

The station here pictured was first installed in a rubber factory, where chemical fumes attacked the ordinary station and control mechanism, necessitating frequent repairs. Since this new type station has been installed this difficulty has been overcome entirely.



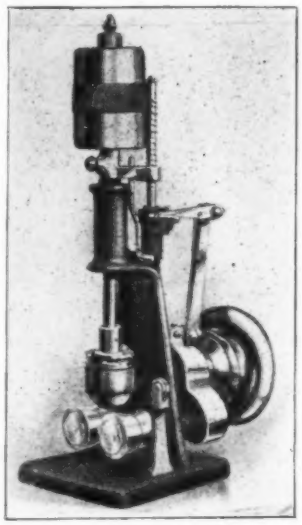
Two Wire Watertight Switch

The control mechanism is enclosed in a cast iron case, excluding all moisture and fumes. A stuffing gland on the shaft provides a tight fit, and the wall of the body allows enough threads for a good conduit or pipe connection. Contact is made on a brass cylinder by two heavy zinc plated fingers of standard non-stubbing design, which are mounted on asbestos lumber. The contact tips of heavy bar rolled copper are of sufficient capacity to permit the use of this master control station on any pilot circuit at all commercial voltages.

The large polished brass handle gives a convenient grip to the operator, and extends far enough from the case to indicate whether the station is open or closed. All parts are generously proportioned to reduce chances of breakage in rough or careless handling. The case is sprayed with a protecting paint to withstand submersion in water or the effect of acid fumes.—The Cutler-Hammer Manufacturing Company, Milwaukee, Wisconsin.

Golf Ball Core Winder

The illlustration here shown represents a very compact and practical machine for winding golf ball cores or centers. It is a bench machine occupying but 6 by 9 inches area, and is power operated by a round belt and clutch connection. The center to be wound is held in a suitable vertical chuck and is revolved, supported upon a pair of gear driven conical sleeve-like rollers. Pressure upon the core to secure proper tension of winding is secured by a weight on top of the core spindle. The machine is easy to operate and has a capacity of winding 3 gross of ball centers a day. It is patented by William Whitesmith & Co., Glasgow, Scotland.—The Hohwieler Machine & Engineering Co., Morrisville, Pennsylvania.


Whitesmith- Milne Winder

Machinery Patents

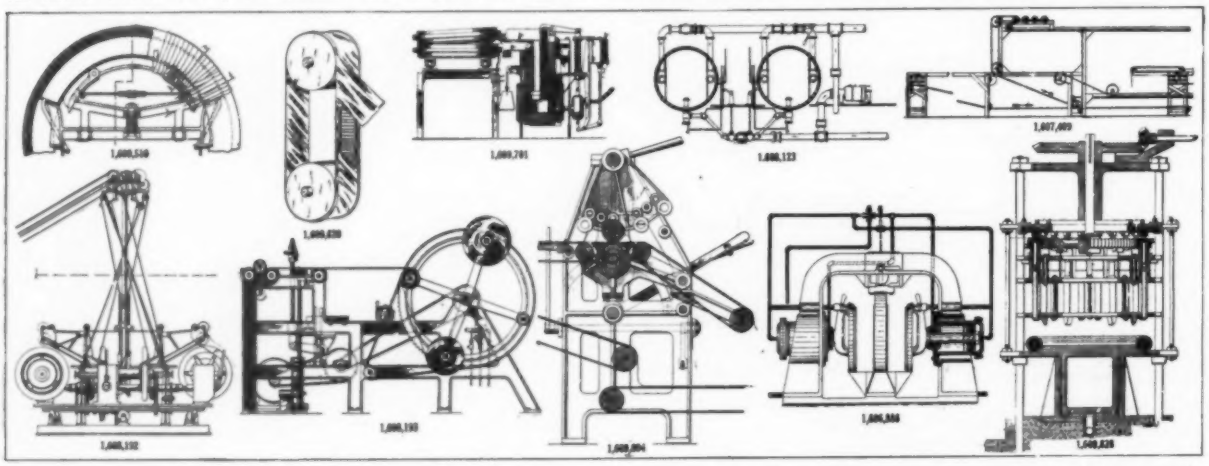
United States

1,606,886. MACHINE FOR REMOVING TIRE CASINGS FROM MOLDS. The essential features of this machine comprise a holding device adapted to grip the tread ring of the mold, devices for taking hold of the side plates and pulling them away from the tire and tread ring. One or more pressure members contact with the tire at the head and force it through the tread ring. These several elements are moved and controlled by special mechanisms embodied in the machine.—Thomas Midgley, Hampden, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,607,409. FABRIC LAMINATING. Laminated cord fabric strips are cut parallel to the cords by this machine which comprises two belt conveyers running toward each other and carrying a strip of bias cut cord fabric. Cloth pieces are inserted between the strips to prevent adhesion when they converge and pass downward between the end rollers of the belt conveyers. At a given point in the travel of the two separated plies the operator tears the upper ply of fabric in one direction and the underneath ply in the opposite direction. The torn off strips are removed from the conveyer as fast as they are prepared and may be spliced into endless bands.—C. E. Maynard, Northampton, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.

1,608,123. DIFFERENTIAL CURE VULCANIZER. In the vulcanization of footwear it is desirable to apply differential pressure on the goods to compact their construction after the heat has reached a point sufficient to soften the articles. Any air bubbles contained between the plies or gases generated in the cure are thus eliminated. The differential pressure is applied through a circulating system operated by a pump of constant pressure variable volume type.—Paul B. Hunt, Hamden, assignor to The Naugatuck Chemical Co., Naugatuck, both in Connecticut.

1,608,192. TIRE MACHINE AND FABRIC FEEDING MECHANISM. The tire machine is mounted on a turntable carrying four cores and core supports because tire building is divided into four operations, each performed at the same time on separate cores. Lengths of fabric are conveyed by a belt to the top above the platform from which they are brought down over stretching and tensioning rollers. The loop formed by the last roller in the series is sufficient to furnish enough fabric for the required rotations of the core for a single operation.—William C. Stevens, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.



1,608,193. WINDING AND REELING MECHANISM. Rubber coated fabric, as it issues from a battery of calenders, is wound up together with a liner strip into a number of rolls for future use without interrupting the calendering operation. The mechanism also severs the strip, when a

roll has been wound, without distorting the threads, wrinkling the strip or otherwise injuring it.—William C. Stevens, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

1,609,004. RUBBER CUTTING MACHINERY. This carries a number of cutters of different sizes or styles, any one of which may be readily brought into operating position without loss of time or the necessity of stopping the machine. It is specially adapted for cutting sheet rubber into blanks suitable for making rubber footwear.—Charles W. Steele, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,609,510. TIRE RETREADING VULCANIZER. This comprises a segmental hollow mandrel into which steam is admitted and over which the used tire carcass previously stripped of its old tread is mounted for retreading. A tape binder is then wound around the retread and the segmental rim. The latter is then drawn down by an adjusting nut to hold the retread into contact with the carcass while steam is admitted to the mandrel for curing.—George W. Eno, assignor to George W. Eno Rubber Co., both of Los Angeles, California.

1,609,620. APPARATUS FOR MAKING TIRE BANDS. A pair of bead core strips, each equal in length to the bead circumference of a tire, is made endless by splicing. They are spaced apart a distance equal to the width of the tire band to be made and a strip of fabric is wound spirally around them to bring the wraps edge to edge. Additional plies are wound on in the reverse direction so that the cords of adjacent plies will cross each other.—John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,609,701. MOLD SEPARATOR. The top or cover of a tire mold is raised from the bottom by arms which engage the edges of the mold between its flanges. The separation of the mold halves is effected by the lifting force exerted by fluid pressure under electrical control applied to a piston connected with the arms.—John H. Doty, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

1,609,828. BORING MACHINES. A boring mechanism adapted to bore simultaneously the cross holes around the circumference of "Trublpruf" tires in place of molding them. The tire rests on a platen and is raised by hydraulic pressure against the circle of hollow boring cutters with core removing plungers. Water is used for a lubricant in cutting. The radius of the circle of cutters and plungers is adjustable to accommodate tires of different diameters.—Henry M. Lambert, Portland, Oregon, assignor to Lambert Tire & Rubber Co., Barberton, Ohio.

1,607,077 Multiple heater control. Howard A. Hands, assignor to Hood Rubber Co., both of Watertown, Massachusetts.

1,607,340 Tire spread holder. Albert Crost and Hugh T. Hughes, Cleveland, Ohio.

1,607,384 Collapsible pole. Frank B. Ball, assignor to The Manhattan Rubber Manufacturing Co., both of Passaic, New Jersey.

1,607,427 Tire fabric cutter. Steve Boros, Kenmore, Ohio.

1,608,067 Hose apparatus. John C. Hull, Gaspert, New York.

1,608,334 Machine for refacing and smoothing solid truck tires. Alfred E. and Frank E. Palin, Santa Rosa, California.

1,608,425 Tire stripping machine. Edward D. Putt, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

1,608,816 Tire tread vulcanizing mold. Lannie L. Ruark, Coalinga, California.

1,608,933 Sealing ring for vulcanizing tires. John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,609,514 Tire stripping machine. Michel Kimmerling, Birmingham, Alabama.

1,609,576 Tube repair vulcanizing apparatus. Herman Schlotthauer, assignor to Columbia Industrial Machinery Co., both of Chicago, Illinois.

Reissues

16,498 Tire making machine. William B. Harsel and Edward Nall (deceased), assignors to The Goodyear Tire & Rubber Co., all of Akron, Ohio. Filed October 24, 1923. Serial No. 670,620. Original No. 1,395,182, dated October 25, 1921., Serial No. 200,186, filed November 3, 1917, and part of original No. 1,395,055, dated October 25, 1921. Original application filed November 3, 1917. Serial No. 200,185. Divided and application filed September 25, 1918, Serial No. 255,651.

16,499 Tire making machine. William B. Harsel and Edward Nall (deceased), assignors to The Goodyear Tire & Rubber Co., all of Akron, Ohio. Filed October 24, 1923. Serial No. 670,621. Original No. 1,395,183, dated October 25, 1921, Serial No. 200,185, filed November 3, 1917. Renewed November 18, 1920. Serial No. 428,026, and part of original No. 1,395,055, dated October 25, 1921. Original application filed November 3, 1917. Serial No. 200,185. Divided and application filed September 25, 1918, Serial No. 255,651.

Dominion of Canada

265,692 Tire machine. The Dominion Rubber Co., Ltd., Montreal, Quebec, assignee of Hector Vivian Lough, Hartford, Connecticut, U. S. A.

265,693 Coating machine. The Dominion Rubber Co., Ltd., Montreal, Quebec, assignee of Thomas Baker Huestis, Bristol, Rhode Island, U. S. A.

265,751 Mandrel for inner tubes. Walter Kline, Chillicothe, assignor, and Charles K. Strobel and Ralston Duncan McCrosky, each an assignee of one-third of the interest, both of Akron, all in Ohio, U. S. A.

265,962 Decorative inlaid sheeting apparatus. Tod Joseph Mell, Akron, Ohio, U. S. A.

266,089 Temperature control device. The Firestone Tire & Rubber Co. of Canada, Ltd., Hamilton, Ontario, assignee of Roy W. Brown, Akron, Ohio, U. S. A.

266,257 Tire vulcanizer. Charles E. Norris, London, Ontario.

266,343 Tire tube deflating machine. A. Schrader's Son, Inc., assignee of John Wahl and Otto Meizer, both of New York, N. Y., U. S. A

United Kingdom

257,883† Vulcanizing molds. Soc. des Procédés Fit, 26 Rue St. Jacques, Grenoble, Isere, France.

257,914† Vulcanizing molds. W. L. Fairchild, 250 West 57th street, New York, N. Y., U. S. A.

258,140 Apparatus for inflating toy balloons. E. L. Moore, 101 Magoun avenue, Medford, Massachusetts, U. S. A.

258,977 Drying, impregnating or vulcanizing apparatus. Sir A. W. Hawthornden, Overland Road, Mumbles, Swansea.

259,022 Calendering rolls. Dunlop Rubber Co., Ltd., 1, Albany street, Regent's Park, London, and A. E. Penfold, Dunlop Rubber Co., Ltd., Fort Dunlop, Erdington, Birmingham.

259,119 Extrusion machine. C. W. Taylor, 146, Queens Road, Watford, Hertfordshire.

†Not yet accepted.

Germany

437,559 Apparatus for producing rubber from rubber latex. General Rubber Co., New York. Represented by R. H. Korn, Berlin, S. W. 11.

437,711 Device for putting little metal plates on pegs particularly in the manufacture of rubber heels. Gustave Vogelsang, Werrestrasse 79, Herford, Westphalia.

437,934 Straightening (dressing) machine for rods and tubes of celluloid, artificial horn, hard rubber and the like. Eugen Stich, Am oberen Luisenpark 5, Mannheim.

France

611,526 Improvements in horizontal vulcanizing apparatus for tires and all other rubber articles. F. G. Kuhlmann.

612,682 Heating press of an automatic vulcanizer. F. Rosenkranz.

613,069 Vulcanizer. Société des Appareils. Mephisto Jules Manfredi et Cie.

Designs

Germany

965,768 Hydraulic multiple-chamber block-press heated on all sides. Lupinit G. m. b. H., Mannheim.

967,934 Automatic tire-cutting machine. Hugo Dietzel, Rotermundstrasse 31, Hannover.

968,664 Separable vulcanizing apparatus. Robert Meyer, Auf dem Dom 21, and Karl Stolle, Derfflingerstrasse 13, Hannover.

968,926 Perforating machine for soft rubber. Hugo Dietzel, Rotermundstrasse 31, Hannover.

969,018 Rubber friction roller for small electrical motors, particularly for sewing machines. Siemens-Schuckerwerte G. m. b. H., Berlin-Siemensstadt.

Process Patents

United States

1,606,865 Making annular rubber tubes. Albert H. Bates, Shaker Heights, and George M. Soule, South Euclid, both in Ohio, assignors to Paramount Rubber Consolidated, Inc., Tuckahoe, New York.

1,607,266 Rubberized fabric. Hector V. Lough, assignor to The Hartford Rubber Works Co., both of Hartford, Connecticut.

1,607,291 Recovery of rubber and cotton contained in used motorcar pneumatic tires. Raymond Marie, Colombes, France.

1,607,375 Laminated material, sole for footwear. Mahlon P. Whipple, assignor to The Firestone-Apsley Rubber Co., both of Hudson, Massachusetts.

1,607,885 Expansible annular brake bands. Frank Fenton, assignor to The Miller Rubber Co., both of Akron, Ohio.

1,607,964 Art of manufacturing vulcanized rubber articles. John W. Patterson, assignor to The Seamless Rubber Co., both of New Haven, Connecticut.

1,608,102 Weftless fabric. Alfred E. Jury, Rutherford, New Jersey, assignor to The Hartford Rubber Works Co., Hartford, Connecticut.

1,608,393 Sheet rubber articles. Albert Ennis Henderson, Toronto, Ontario, Canada.

1,608,727 Coated rubber. Charles T. Dickey, Elizabeth, assignor to Rodic Rubber Co., Garwood, both in New Jersey.

1,609,493 Baseball. Harry Nye, Akron, Ohio.

1,609,644 Tire and process of making the same. James R. Darling, Whittier, California.

1,610,156. Method of manufacturing inflatable toys. Ralph E. Riley and Roy B. Weimer, assignors to The Miller Rubber Co., all of Akron, Ohio.

Dominion of Canada

265,666 Rubber sheeting. Tod Joseph Mell, Akron, Ohio, U. S. A.

United Kingdom

258,968 Hose pipes. V. Lefebure, of Willett Works, Ltd., Burlington Road, Fulham, London, England.

259,028 Mixing sulphur with rubber. Dunlop Rubber Co., Ltd., 1, Albany street, Regent's Park, London, H. C. Young and J. D. Campbell, Dunlop Rubber Co., Ltd., Fort Dunlop, Erdington, Birmingham.

Germany

437,100 Method of producing cord-fabrics for automobile tires and the like. Heinrich Bartels, Spittastrasse 15, Hannover.

438,102 Method of producing multiple-trace block belt of rubber. Rudolf Roderwald, Am Tempelhofer Berg 5 a., Berlin.

Legal Decisions

ALBERT C. BURRAGE and Portsmouth Dye & Chemical Co. vs. Rubber Service Laboratories, Inc. In Equity No. 2034. Patent No. 1,597,233.—The defendant, Rubber Service Laboratories, Inc., was enjoined from directly or indirectly infringing United States patent No. 1,597,233 dated August 24, 1926, for vulcanization of rubber, granted to and owned by the plaintiff. As plaintiffs have waived all accounting for damages and profits, no damages or profits are awarded and neither party recovers costs against the other.—United States District Court, Northern District of Ohio, Eastern Division.

Patent Suits

Patent 1,607,963, issued to Patterson, for vulcanized rubber water bottle, claims 1, 3 and 4 of application rejected on prior art.—Patterson, J. W., ex parte, Commissioner of Patents.

Patent 1,608,192 issued to Stevens November 23, 1926, for tire machines and fabric feeding mechanism. Claims 11, 14 and 16 of application rejected on reference.—Stevens, W. C., Application (Decision, Examiners-in-Chief.)

Design Patent 71,562, issued to Penfold for golf balls. Degree of invention involved in making a unique, ornamental and novel design on golf balls, held sufficient to justify allowance of claim.—Penfold, A. E., ex parte, Application Commissioner of Patents.

Patent No. 1,609,828 issued to Lambert for boring machine. Claims 3 and 11 of application allowable in absence of reference teaching how Spears No. 585,715 construction could be modified to produce claimed construction.—Lambert H. M., Appeal, Examiners-in-Chief.

Patent 1,461,531, Klaus and Meyer, Method of making cushion tire structures, decided November 5, 1926, claims 9 and 10.—*Official Gazette*, Volume 352, page 786.

Patent 927,266, A. J. Michelin, Means for securing the tires of automobiles, suit filed June 30, 1926, D. C., N. D. Ohio (E. Div.), Doc. 1958, A. J. Michelin et al. v. Firestone Steel Products Co. Case dismissed by stipulation Sept. 27, 1926.—*Official Gazette*, Volume 353, page 9.

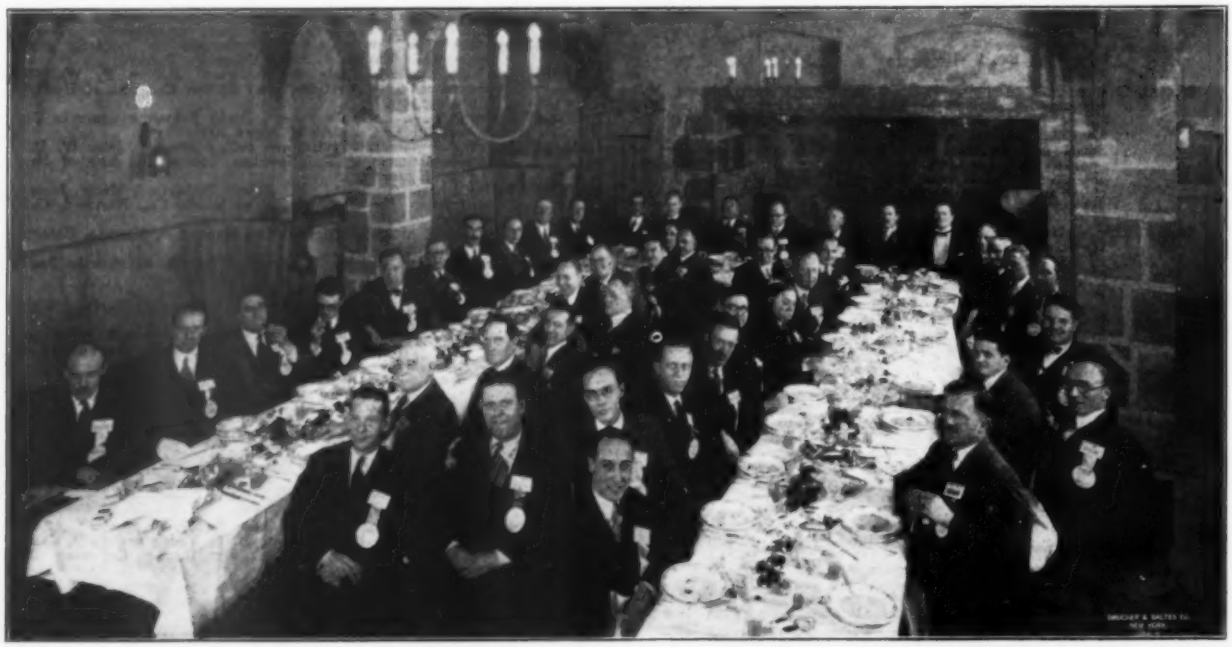
Customs Appraisers' Decisions

Chicle Development Co. vs. United States. (T. D. 41894). Protest 124256-G against the decision of the collector of customs at the port of New York. Crown gum proven not to be chicle, but a gum not specially provided for, is not dutiable as crude chicle at 10 cents per pound under paragraph 25, tariff act of 1922, but is free of duty as a gum not specially provided for under paragraph 1584. Rubber Association of America et al. v. United States (11 Court Customs Appeals 46; T. D. 36869) distinguished.—*Treasury Decisions*, Volume 50, No. 24, page 12.

No. 1126.—Petition 2456-R of E. M. Lerner & Sons, Inc., Boston. The importation was confectionery in the form of a stick of licorice with a rubber bubble attached. While the importer bought the goods at 30 cents per gross the invoice was made out at 45 cents per gross. In making the entry the importer deducted 15 cents per gross to make market value and additional duties were assessed. Opinion by Brown, J. On the record presented it was held that the importer showed diligence in endeavoring to find the foreign market value. The petition for remission of additional duties was therefore granted.—*Treasury Decisions*, Volume 50, No. 22, page 35.

ACCELERATOR W-29

Under the designation W-29 a new accelerator is now offered for the use of rubber manufacturers. It is the most recent addition to the ultra rapid group, effecting vulcanization at 10 pounds steam pressure in from 3 to 5 minutes according to the proportions of the rubber mixing and at room temperature in from 2 to 3 days.



THE ANNUAL DINNER OF THE STAFF OF EDWARD LYMAN BILL, INC., PUBLISHER OF TEN TRADE JOURNALS INCLUDING *THE INDIA RUBBER WORLD*, HELD IN NEW YORK, N. Y., DECEMBER 17, 1926

The Editor's Book Table

Book Reviews

"THE CALENDER EFFECT AND THE SHRINKING EFFECT OF UNVULCANIZED RUBBER." By Dr. W. De Visser. Translated from the original Dutch by Edward S. Allsop, London, Crosby, Lockwood & Son, 1926. Cloth, 5½ by 8¼ inches, 152 pages. Indexed. Illustrated.

THIS is an exhaustive experimental study of the various factors that contribute to the calender effect in rubber working. The work is detailed and thorough in scope as indicated by the range of topics discussed. These include a survey of the literature; chosen standard method of calendering; mechanical examination; influence of different factors; working of the calender on the rubber; plasticity; calender and shrinking effect without calendering; further phenomena; theoretical considerations and conclusions.

The author concludes that the appearance of calender effect in rubber is connected with an alteration of the internal structure, by which a definite location and regularity of small particles appear. A partial crystallization of the rubber, whereby extremely fine directed crystals exist, is highly probable.

The book contains much of value for the consideration of the rubber research chemist and technologist.

"ANNUAL REPORT OF DIRECTOR OF THE BUREAU OF STANDARDS FOR FISCAL YEAR ENDED JUNE 30, 1926." Miscellaneous Publications, Bureau of Standards, No. 75. Paper, 5¾ by 9 inches, 45 pages, appendix 3 pages.

This report reviews the general and special activities of the Bureau of Standards, giving the cost of each. Of special interest and value to the rubber industry are those that were made on aging or soft rubber compounds, guayule rubber, automobile tires for government use, and motorcar brake lining performance.

"A. S. T. M. TENTATIVE STANDARDS." American Society for Testing Materials, Philadelphia, Pennsylvania. Paper or cloth, 1,100 pages, 6 by 9 inches. Illustrated.

This volume contains the 227 tentative specifications, methods of tests, definitions of terms and recommended practices in effect at the time of publication. The specifications cover all the usual materials of engineering construction and industrial use, among them three that relate to rubber products. These are 30 per cent rubber insulation for wire and cable, steam hose and rubber insulating tape. Wire specifications are given which relate to textiles used in the rubber industry. This collection of specifications is invaluable because it represents the results of the thought and experience of experts in construction and industrial engineering.

"ELECTRICAL INSULATING MATERIALS." By Allan Monkhouse. Sir Isaac Pitman & Sons, Ltd., 2 West 45th street, New York, N. Y. Cloth, 392 pages, 5½ by 8¼ inches. Illustrated. Indexed.

The author has produced a valuable treatise on the general subject of electrical insulation that will be welcomed by the engineer and chemist concerned with the construction and operation of electrical construction for both high and low tension circuits.

Quoting from the preface, "The work deals with all the insulating materials employed in modern electrical work, giving as much information as possible with regard to their prime sources and the conditions of their preliminary preparation and manufacture."

The scope of the book is indicated by the chapter topics which cover the theory and classification of insulating materials; paper; fabrics; cable and wire insulation; varnishes and solvents; pressboard and vulcanized fiber; laminated varnish products; timbers; bitumens; insulating oils; rubber and gutta percha; molded compositions; products of cellulose, mica, asbestos, glass, slate, marble, soapstone, cements and adhesives, and oxide films.

Two appendices supplement the book both on standard test methods approved by the British Engineering Standards Association and the British Electrical and Allied Industries Research Association.

New Trade Publications

"THE TAG RECORDER CATALOG NO. 905C." C. J. TAGLIABUE Manufacturing Co., Brooklyn, New York. This unusually complete, illustrated catalog makes strikingly evident the broad reasons for the use of recording instruments. It covers TAG mercury, vapor tension, and gas filled recording thermometers, dial indicating thermometers, recording hygrometers and psychrometers, time operation recorders, vacuum and pressure recorders, TAG recording controllers, etc.

"LEAD OLEATE 999 AND ITS EFFECT UPON THE VARIABILITY IN Crude Rubbers," issued by The Stamford Rubber Supply Co., Stamford, Connecticut. It treats of the properties and value of lead oleate as a rubber compounding ingredient and illustrates its use in typical tire stocks, friction, breaker and tread. Charts are included showing the action of lead oleate in improving rolled home crepe.

"SCHWABENTHAN," IS THE TITLE OF THE TWO PART illustrated catalog issued by Fr. Schwabenthan & Co., Saarbrückerstrasse 22-24, Berlin No. 55, Germany. Part 1 is devoted to mills, calenders and tubing machines, Part 2 to cement mixers, spreaders, doubling rolls, hydraulic presses, vulcanizers, hose making machinery, molds, etc. These catalogs represent the latest developments in German rubber machinery.

"THE A B C OF HYDROGEN ION CONTROL," ISSUED BY LA MOTTE Chemical Products Co., Baltimore, Maryland, contains a discussion of hydrogen ion concentration and *p*H values in simple language, and their applications in various industries, followed by illustrated catalog data.

"PATTERSON PEBBLE MILLS" IS THE TITLE OF AN ILLUSTRATED catalog sent to the industry by The Patterson Foundry & Machine Co., East Liverpool, Ohio.

"BROWN ELECTRIC FLOW METERS." CATALOG 20 ISSUED BY THE Brown Instrument Co., Philadelphia, Pennsylvania, is a practical treatise stressing the importance of flow meters in modern power plants and describes and illustrates the special features of construction, design and advantages of Brown recording flow meters.

"MONTHLY BULLETIN NO. 1," A FOUR PAGE LEAFLET ISSUED BY Wishnick-Tumpeer, Inc., 251 Front street, New York, N. Y., lists the company's specialties with New York price quotations and announces its technical service department maintained for the benefit of the trade. The laboratory includes a complete rubber experimental plant, chemical laboratory and color matching facilities.

"THE BLACK ART OF RUBBER COMPOUNDING," CHAT NO. 13, issued by Binney & Smith Co., 41 East Forty-second street, New York, N. Y., is devoted to the use of stearic acid in rubber working. Following the explanation of the function and limitations of palm oil and lead oleate in rubber compounding the substitution of stearic acid is recommended because of its purity. The literature is cited on the effect of fatty acids in stabilizing the rate of cure and its importance in activating accelerators of different types. The superiority of stearic acid as a dispersing agent and emollient is discussed as also are the savings effected through its use.

Graphs are given illustrating the effect on the tensile properties of both single and double pressed stearic acid on a typical tire tread stock, these grades being known as Stearex A and B.

"THE ENGINEERING ACHIEVEMENTS OF THE WESTINGHOUSE Electric & Manufacturing Company for the Year 1926." This well-illustrated and attractively printed publication of forty-two pages sums up for the past year the varied activities of the Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania. The subjects covered include certain developments in the generation and distribution of power, transportation, illumination, the radio, etc.

Abstracts of Recent Articles

BUDDING OF RUBBER. Abstract of report.—R. A. Taylor, *India Rubber Journal*, December 4, 1926, 1,035-6.

THE IMPORTANCE OF RUBBER IN ECONOMIC AND SOCIAL PROGRESS.—Sir Stanley Bois, *Bulletin Rubber Growers' Association*, November, 1926, 584-590.

SMOKED SHEET RUBBER PREPARED WITH DINITRO-ORTHOCRESOL.—S. P. Stevens, *Bulletin Rubber Growers' Association*, November, 1926, 594-596.

RUBBER OCCUPATIONAL SKIN DISEASES.—J. S. Willard, *Rubber Age*, New York, November 25, 1926, 189-190.

ORIGIN OF X-RAY INTERFERENCES IN THE STRETCHING OF RUBBER.—E. A. Hauser, *Zeitschrift Electrochemie*, 1926, 32, 463-467.

THE PREPARATION OF A STANDARD PLANTATION RUBBER. Lecture by F. B. Jones, before the Institution of the Rubber Industry.—*Rubber Age*, London, December, 1926, 419-421.

MOLDING AND VULCANIZING RUBBER ARTICLES. Synopsis of paper read before the Society of Chemical Industry.—Harry Willshaw, *Rubber Age*, London, December, 1926, 422.

DIRECT USE OF RUBBER LATEX, ESPECIALLY VULCANIZED LATEX.—Philip Schidrowitz, *India Rubber Journal*, November 27, 1926, 979-984.

JUDGING RAW AND VULCANIZED RUBBER BY THE AID OF ULTRA-VIOLET RAYS.—Dr. K. L., *Gummi-Zeitung*, November 19, 1926, 417.

ROENTGEN EFFECT OF STRETCHED GELS, ESPECIALLY CAOUTCHOUC.—W. Ostwald, *Kolloid Zeitschrift*, 1926, 40, 58-73.

HAS CAOUTCHOUC BEEN SYNTHETIZED?—J. R. Katz, *Kolloid Chemische Beihefte*, 1926, 23, 344-348.

JELUTONG. Deals with the occurrence and properties of the latex and experiments on its coagulation.—B. J. Eaton, C. D. V. Georgi and Gunn Teik, *Malayan Agricultural Journal, September*, 1926, 275-285.

PROGRESS IN RUBBER CHEMISTRY DURING THE LAST FIVE YEARS. Address on developments regarding latex, investigation of the structure of rubber, and discussion of accelerators.—G. S. Whitby, *Canadian Chemistry & Metallurgy*, December, 1926, 287-288.

IMPORTANCE OF SOYA BEAN OIL FOR INCREASING TENSILE AND PLASTICATING IN THE MANUFACTURE OF COLD VULCANIZED ARTICLES.—Rudolf Ditmar, *Gummi-Zeitung*, December 3, 1926, 535-536.

FRACTIONATION AND MOLECULAR SIZE OF RUBBER.—Rudolf Pummerer, *Gummi-Zeitung*, October 1, 1926, 22.

THERMODYNAMICS OF THE JOULE EFFECT IN CRUDE RUBBER.—Lothar Hock, *Gummi-Zeitung*, October 1, 1926, 23.

STRETCH OF RUBBER.—J. R. Katz, *Gummi-Zeitung*, October 1, 1926, 23.

LUBRICANTS FOR GROUND GLASS JOINTS. Formula for inert pressure and special lubricants some of which contain rubber.—M. J. Bradley and H. E. Wilson, *Industrial & Engineering Chemistry*, December, 1926, 1,279-80.

THE CONTRIBUTION OF THE DYESTUFF INDUSTRY IN THE DEVELOPMENT OF THE RUBBER INDUSTRY. Organic accelerators and rubber colors.—Donald H. Powers, *Industrial & Engineering Chemistry*, December, 1926, 1,344-46.

RUBBER-STRUCTURE RESEARCH.—E. A. Hauser, *Gummi-Zeitung*, November 26, 1926, 475.

REMARKS ON A "STUDY OF RUBBER SUBSTITUTE."—Dr. Paul Alexander, *Gummi-Zeitung*, November 26, 1926, 477.

FURTHER INTRODUCTION TO THE THEORY OF THE NEEDLE-SHAPED RUBBER MOLECULE. II.—E. Lindmayer, *Gummi-Zeitung*, November 5, 1926, 300-301.

STRETCHED RUBBER, ITS "MELTING LINE" AND ITS DENSITY. I.—Dr. Heinrich Feuchter, *Kautschuk*, November, 1926, 260-263. Illustrations, table.

IMITATION LEATHER AND RELATED ARTIFICIAL MATERIALS WITH RUBBER AS BINDING AGENT.—Dr. Walter Obst, *Kautschuk*, November, 1926, 265-266.

THE ABSORPTION OF LIQUIDS BY RUBBER.—Paul Bary, *Revue Générale du Caoutchouc*, November, 1926, 5-8. Tables.

COAGULATION PHENOMENA IN HEVEA LATEX. IV. Further investigations with latex in the second liquid zone.—O. de Vries and N. Beaumée Nieuwland, *Archief voor de Rubber Cultuur*, November, 1926. 503-547 and 25 tables. English summary, 548-565.

PERIODICAL TAPPING WITH PREVIOUSLY CALCULATED FLOWING PERIOD.—Th. G. E. Hoedt, *Archief voor de Rubber Cultuur*, November, 1926, 566-572. English version, 573-575.

INOCULATION EXPERIMENTS IN RELATION TO "SUN-SCORCH" OF EXPOSED LATERAL ROOTS OF *Hevea Brasiliensis*.—F. S. Ward, *The Malayan Agricultural Journal*, September, 1926, 286-289.

CALENDAR

The Rubber Association of America, Inc., January 10, Annual Meeting and Dinner, Hotel Commodore, New York, N. Y.

National Automobile Chamber of Commerce, January 8-15, National Show, Grand Central Palace, New York, N. Y.

National Automobile Chamber of Commerce, January 10-11, Third World Motor Transport Congress, Hotel Roosevelt, New York, N. Y.

National Automobile Chamber of Commerce, January 11, Service Meeting, New York, N. Y.

National Automobile Chamber of Commerce, January 11, Banquet, New York, N. Y.

Motor & Accessory Manufacturers' Association, January 12, Dinner, New York, N. Y.

Society of Automotive Engineers, January 13, Annual Dinner, Hotel Astor, New York, N. Y.

Automobile Show, January 22-29, Twenty-third Regiment Armory, Brooklyn, N. Y.

Society of Automotive Engineers, January 25-28, Annual Technical Meeting, Detroit, Michigan.

Society of Automotive Engineers, January 28, Carnival, Detroit, Michigan.

National Automobile Chamber of Commerce, January 29-February 5, National Show, Coliseum, Chicago, Illinois.

Automobile Salon, January 29-February 5, Hotel Drake, Chicago, Illinois.

AMERICAN-FILIPINO PLANTING PROJECT

Excellent progress in financing the newest American-Filipino rubber-growing project is reported by Leo W. Meyer, secretary of the Meyer-Muzzall Co., 60 California street, San Francisco, California, sole agents in the United States for the recently formed 1,000,000 peso Panabutan Lumber & Plantation Co., Zamboanga, Philippine Islands. It is said to be the first corporation of its kind almost wholly financed with American capital. Its president is A. H. Muzzall, a well-known resident of Manila and rubber expert. Considerable headway has been made by W. R. Bailard in clearing the 1,024 hectares (the legal limit) of land owned by the company, and budded stock from high yielding Hevea trees in Sumatra is being planted. When the plantation is in full bearing it is expected to yield about 1,000,000 pounds of rubber and to afford a good profit if rubber averages no higher than 35 cents (gold) within ten years. Officers of the company are: President, Mayor James Rolph, Jr., of San Francisco, California; secretary, Mr. Meyer; and treasurer, A. H. Muzzall.

New Goods and Specialties

Rainy Day Outfits

COLORFUL plaids are used in these rainy day outfits which consist of matching coat, hat and umbrella of fine quality broadcloth with pure gum rubber coating. For the little ones, 2 to 6, the Baby Raindear sets are made with loose fitting coat with patch pockets and adjustable storm tab on collar and sleeves. The hat is smartly styled and lined throughout. For the older miss, 6 to 16, Miss Raindear is designed along fashionable, as well as serviceable lines. The loose fitting college mode is adapted to the coat which also has patch pockets and finished with storm tab on collar. The hat is tailored on millinery lines, and the umbrella has enamel handle with tassel loop and comes in sizes proportional to the coat. Both these sets are made in red, blue and green plaids.

Baby Raindear

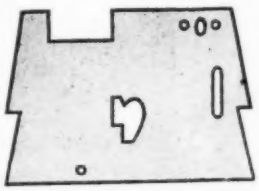
Another style bound to make its appeal to the little people is the Rainsets which comprise a matching coat, hat and pocketbook, all of them decorated with an amusing cat or dog head with movable eyes.—Harris Raincoat Co., 525 Seventh avenue, New York, N. Y.

Self Adjusting Tire Flap

A new automatic self adjusting tire flap has recently been patented by George J. Rossworm and S. Hodge Smith of Cumberland, Maryland, the claim covering the joining of the overlapped ends of the flap opposite the valve hole with a strip of vulcanized rubber, which makes the flap endless and yet self adjusting because of the rubber connector. It does not depend upon the tube to push it in position, the overlapped ends allowing ample adjustment to overcome the variation due to different size beads and various makes of rims.

Motor Car Matting

As a motor car matting the "De Luxe" flooring presents a unique combination of advantages. It is as soft and springy as a deep pile carpet, insulates from the heat of the engine, blankets underneath noises, reduces vibration and keeps out wind and dust. This flooring is easily cut to intricate irregular shapes, fitting snugly over control levers, and has no raw edges necessitating binding. Once laid, it grips the floor and remains flat, doing away with any need of screws. When soiled it may easily be restored to its original freshness by a moment's washing, drying almost immediately.—Sorbo Rubber-Sponge Products, Ltd., Sorbo Works, Woking, Surrey, England.



De Luxe Auto Flooring

Tire Boot

The advent of the balloon tire has created a tremendous demand for this type of boot as it works equally well in a balloon as in a high pressure tire. The boot affords the motorist an immediate and effective repair for rim cuts and large blowouts, relieving the pressure on the cut until convenient to vulcanize. Bulging is prevented at the break in the casing by wrapping the tube doubly, with both ends free to adjust itself under air pressure solidly to the sidewalls, and fitting the casing perfectly, it eliminates any friction or chafing of the tube or casing.—The Burrow Rubber Co., Akron, Ohio.

Burrow Boot

Kneadable Rubber Mass

An interesting novelty which may be applied to many attractive articles is a recent development of Mittelland Gummiwerke A.-G., Hannover-Linden, Germany. This firm has been working for some time on this product and announces that, after many difficult tests, it has succeeded in perfecting a flesh colored kneadable mass capable of being transformed into various objects, such as dolls, etc. The figures can be made to assume any posture, and the beauty and coloring of the finished article is limited only by the skill and originality of the artist working on it.

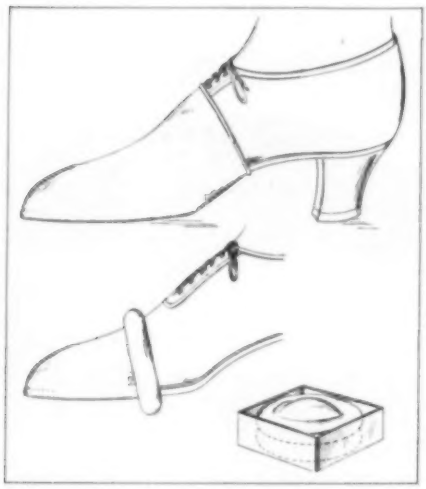
Figurines of Kneadable Rubber

Rubber Clothing

The Hodgman Rubber Co., having transferred its manufacturing equipment from Tuckahoe, New York, to its new plant at Framingham, Massachusetts, announces a complete line of men's and boys' black rubber clothing. Claiming for these waterproofs the same high quality for which Hodgman has been famous since 1838, the manufacturer also advises that they are equipped with the most up-to-the-minute features. The line includes police officers' rubber clothing, firemen's service coats, plain and poncho blankets, ice aprons, auto and fishing shirts, air mattresses and pillows.

Glove Fitting Overshoe

A new type of rubber overshoe soon to make its appeal as an effective yet inexpensive emergency protection for ladies' street shoes is here pictured. It is made of tough elastic rubber in a full range of colors to match the fabric of the shoe. In form it is a tapering conical tube with the pointed end close in hemispherical shape. At the opposite open end the gum wall is rolled back upon itself to form an elastic bead finish. This construction allows rolling the shoe upon itself, bringing it into a very compact ring. The ring is placed over the toe with the dome shaped portion fitting over the toe of the shoe of the wearer who by a simple motion unrolls the rubber to place. The elasticity of the article holds it in place. The toughness of the rubber renders it very wear resisting and durable. Its removal from the shoe is by rolling it back upon itself when it is ready for placing in any convenient container.—Harry J. Powers, Jr., 310 South Michigan avenue, Chicago, Illinois.



Emergency Shoe Protector

Rubber Ball with Automatic Closing

The inflatable toy ball illustrated is essentially different in construction from other similar products, as the valve is made entirely of rubber indissolubly connected to the ball. It is operated by means of a small inflating tube, which is introduced into the ball and the valve cap pressed downward, exposing certain openings in the cap through which the air enters when it is inflated and leaves when it is deflated. When the little tube is removed, the valve cap goes back to its original position, the openings close and the ball is quite airtight, retaining the air for weeks without being reinflated. The balls are supplied in bright colors, and also with silhouettes drawn on them, and are popular with grown-ups as well as with children.—Gummiwarenfabrik Saul G. m. b. H., Aachen, Germany.

Inflatable Ball with Rubber Valve

Duo-Tred Tire

After experimental tests conducted in all parts of the country for the past three years, the Lambert Tire & Rubber Co., Akron, Ohio, announces the completion of its Duo-Tred tire. This pneumatic tire is made in both high pressure and balloon types and receives its name because of the fact that an additional tread is placed inside of the regular pneumatic tread. This inner tread consists of a series of alternating holes and blocks, the air holes permitting the use of a larger volume of rubber in the tread portion without danger of separation, for the holes passing through the tread afford the necessary relief, breaking up the traction waves and strains, and dissipating the heat.

It is claimed that a car equipped with this tire has been driven 63,000 miles without a single puncture, and the tendency to shimmy and gallop, usually so pronounced in balloon tires, is entirely done away with in the Duo-Tred balloon. This is explained by the fact that blows received from road obstructions are minimized and largely absorbed by this super-cushion tread structure before it is delivered to the air chamber. For this reason also, stone bruises are greatly lessened, resulting in added carcass life.

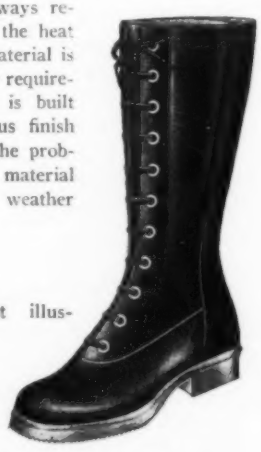
Pneumatic Tire

Du Pont Everbright Pontop

A new development in rubber top materials has been perfected by E. I. du Pont de Nemours & Co., Fairfield, Connecticut, which assures to the purchaser a top with a lustrous finish that will last, and which also adds to the appearance of the car. Because of its rubber composition, it is unaffected by climatic conditions, always remaining soft and pliable whether in the heat of summer or cold of winter. The material is absolutely waterproof and meets every requirement for closed cars. Its quality is built in and it has, in addition, a lustrous finish of unusual durability, which solves the problem of an economical rubber deck material which will stand up under severest weather conditions.

All-Rubber Bootee

The all-rubber sportsman's boot illustrated is especially adapted for wading through snow and water, the full bellows tongue serving to exclude the snow right up to the top of the shoe. The manufacturer claims that this 11-Eyelet Trailpac has been constructed with an eye to the comfort of the wearer; it is built on an easy foot fitting last, slim at the ankle to insure a good fit.—Firestone Footwear Co., Hudson, Massachusetts.



11-Eyelet Trailpac

New Adhesive Container

The Ever-Ready mucilage bottle, a product of S. S. Stafford, Inc., 603 Washington street, New York, N. Y., is a three ounce bottle with a rubber top which combines a means of closure and a spreader. It may be placed upside down in a desk without leaking, can be refilled, the rubber, so the manufacturer claims, being of such a quality that it will not deteriorate over a period of many years. There is no brush, screw, cap or cork in the bottle, the slit in the rubber top permitting just the right amount of mucilage to be applied for quickest sticking. It opens and closes automatically, keeping the mucilage in perfect condition to the last drop. The rubber top is made by The Miller Rubber Co., Akron, Ohio.

Ever-Ready Bottle

Golf and Sport Soles

The new color combinations in Gro-Cord soles are in perfect harmony with present day styles and colors, and are being built into the finest footwear. The discriminating men or women who take pride in their golf paraphernalia will find much to commend in the Prince G two-tone sole, designed to supply the style gap between the out-and-out golf shoes and extreme dress footwear. It gives the rigid stance and stout wear so necessary for accurate play and is tough, flexible and resilient. The sole is supplied in red and light gray to match tan and smoked shades of leather; black and light gray to match white, gray and black; red and chocolate to match tan and chocolate; and black and red matching light and dark tan shades of leather.

Prince G

Alligator

Another type of sole, especially designed for college men and outdoor youngsters wearing knickers, is the Alligator, a non-skid for sport shoes. This style sole is made in three colors, black, chocolate and brick red.—The Lima Cord Sole & Heel Co., Lima, Ohio.

Running Boards for Ford Cars

One of the newest and most serviceable accessories at the disposal of Ford and Chevrolet car drivers is the "No Draft" floor mat, a recent development of the Goodyear Tire & Rubber Co., Akron, Ohio. The mat may be installed in five minutes and is designed to lie flat on the floor of the car, fitting closely about the pedals and excluding in winter, cold drafts and dust, heat and engine fumes in the summer. The mats are made for both open and closed models in all styles.

No-Draft Mat

Running Boards For Ford Cars

Ford cars as furnished by the builder have iron running boards which rather detract from the general appearance of the car. A rubberized running board may be substituted for the usual iron one with marked improvement in the style and durability. The board is in reality of heavy hard wood lumber waterproofed and faced on the upper side with a layer of flat topped corrugation of special wear resisting rubber compound. The rubber stock is molded and vulcanized to the underlying wood surface to which it adheres permanently. The board is bound around the edge with a nickel plated molding attached by screws and overlapping the rubber tread surface slightly. Attachment to the car is effected by special bolts inserted beneath the rubber tread surface.—The C. Spiro Manufacturing Co., Dobbs Ferry, New York, N. Y. Forshay Brothers, Distributers, 243 West 55th street, New York, N. Y.

Golf Tee with Rubber Fingers

The primary function of all golf tees is to elevate the ball, and the novel feature about the Beta tee is the manner in which the ball is supported by four rubber fingers. Owing to the resiliency of these fingers, the ball appears to be floating on air, yielding readily to pressure and thus securing a better drive. The four good points especially stressed by the manufacturer of the tee are: resiliency, minimum contact, non-deflective and more direct drives. —Beta Tee Manufacturing Co., 556 West 185th street, New York, N. Y.

Beta Tee

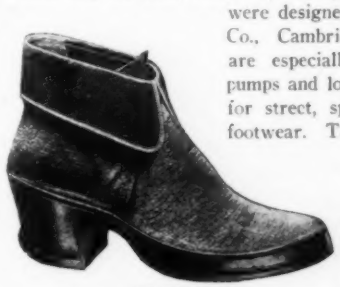
Rubber Hand Grip

Because of the moisture of the hands on warm days and their dryness on cold days, slipping and turning of clubs is a real grievance to most golfers. The Campbell grip corrects this, for the clinging qualities of its rubber surface and the suction created in each small air chamber by the pressure of the hands give the maximum security of grip and hold the club firm. Only the vulnerable parts of the palms and fingers are protected by the grip which in no way interferes with the intimate sense of firm contact between hand and club which is lacking when gloves are worn.

The advantages to golfers claimed for the Campbell grip apply equally to players of tennis, hockey, lacrosse, etc., and the device is most serviceable for rowing, providing full protection against blistered palms.—The Silvertown Co., 106, Cannon street, London, E. C. 4, England.

Serviceable Overshoe

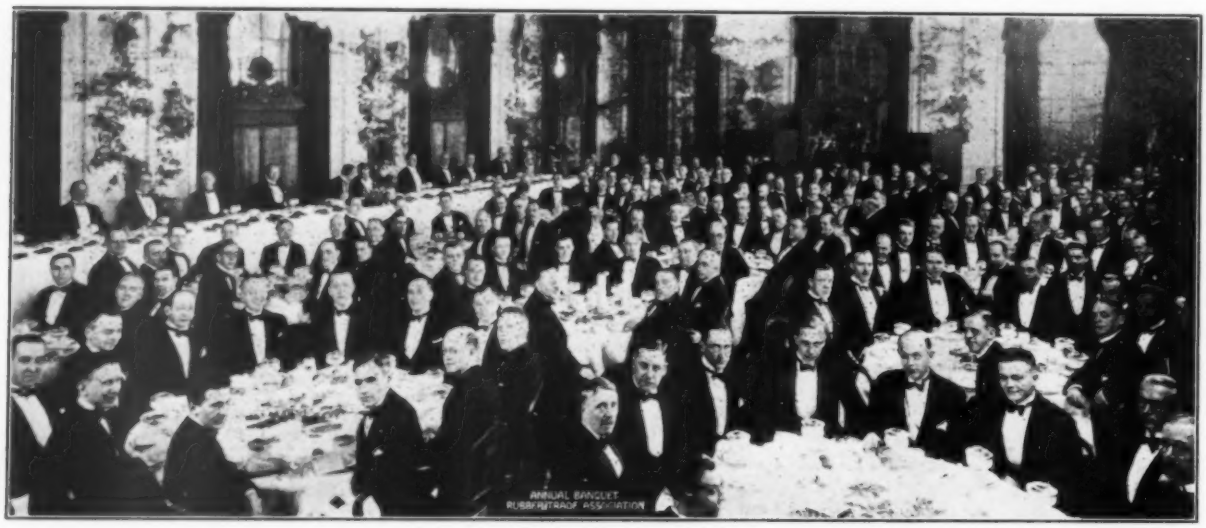
To meet the need for an overshoe practical for the snows of winter and the cold, rainy days of spring and fall, the Raynboots were designed by the Cambridge Rubber Co., Cambridge, Massachusetts. They are especially adapted for wear with pumps and low shoes and are appropriate for street, sport, afternoon and evening footwear. The Raynboots are made with automatic fastener or adjustable strap and may be procured in either of two styles: black fabric upper and colored under cuff with rounded toe and low heel or black or fawn worsted jersey upper with velvet cuff, semi-short vamp and medium high heel.



Raynboots

Rubber Trade Association Banquet

ONCE every year members of the Rubber Trade Association of New York put aside the business of buying and selling crude rubber and get together for an evening of social enjoyment. This event took place on December 8, at the Biltmore Hotel, New York, N. Y., where 225 members and guests assembled in the evening to dine and enjoy a unique program of modern entertainment.



Annual Dinner of the Rubber Trade Association of New York, Inc.

After the usual exchange of friendly greetings in the ante-room, the diners assembled at their respective tables in the banquet hall while the orchestra played the National Anthem. A menu of particular excellence was then served, the band played popular numbers and familiar airs, led by the song leader, were sung in chorus.

With every one in the best of spirits the speaker of the evening, Dr. John L. Davis of Oklahoma, was introduced by the master of ceremonies. While Dr. Davis did not juggle a rope like another well-known humorist from the same state, he did however wield a most nimble wit that sent his audience into gales of laughter. An orator and humorist of the highest order, the speaker discoursed on a wide range of subjects that brought out his sharp but painless wit and masterly satire. The close of his address was a step from the ridiculous to the sublime in which was stressed the fact that truly great men are those who have worked unselfishly for the good of mankind.

The vaudeville entertainment which followed comprised instrumental and vocal music of high order; Belle Baker, inimitable singer of character songs; and the Keller Sisters and Lynch, well-known entertainers from the Casa Lopez, gave new and pleasing harmony to familiar songs.

And so was ended a most entertaining and enjoyable evening all due to C. A. Morse, H. S. De Lanie, and J. S. Rodenbough of the Dinner Committee.

At the speakers table were: F. Pusinelli, president of the Association; D. D. Holdane, vice president; W. E. Bruyn, F. R. Henderson and C. T. Wilson, former presidents; S. J. Goldsmith and N. M. Behr, attorneys for the Association; A. L. Viles, general manager, Rubber Association of America; P. L. Palmerton, editor *The Rubber Age;* E. S. Babcox, president and publisher, *India Rubber & Tire Review*, and W. M. Morse, associate editor THE INDIA RUBBER WORLD.

RUBBER ASSOCIATION ANNUAL MEETING AND DINNER

The twelfth annual meeting of the Rubber Association of America will be held at 10:30 A. M., January 10, 1927, at the Hotel Commodore, Lexington avenue and 42nd street, New York, N. Y. The regular order of business will be taken up promptly, and there will be no meetings of the Association's various divisions and committees at this time. A luncheon is to be served at 1:00 P. M.

The twenty-seventh annual dinner will be held January 10, 1927, at 7:00 P. M. in the Grand Ballroom of the Hotel Commodore. Members who plan being present at this dinner should secure reservations as early as possible, the closing date for such reservations being January 5.

The Banquet Committee announces that one of the speakers at the dinner will be Arthur ("Bugs") Baer, famous newspaper humorist. The committee has been exceedingly fortunate in securing the services of John Charles Thomas, a baritone of concert and operatic fame. Ladies will be admitted to boxes in the balcony of the Grand Ballroom at nine o'clock.

TIRE INVENTORY—PRODUCTION—DOMESTIC SHIPMENTS

	October, 1926		
	Inventory	Production	Total Shipments
High pressure cord casings	3,750,731	1,916,053	1,560,399
High pressure fabric casings	616,768	155,768	179,668
Balloon casings	3,070,060	1,755,646	1,668,051
Solid and cushion tires	156,349	43,796	44,636
High pressure inner tubes	7,588,923	2,869,433	2,456,252
Balloon inner tubes	4,358,084	1,786,536	1,649,595

COTTON AND RUBBER CONSUMPTION IN TIRES AND TUBES

	Pounds
Cotton fabrics	13,972,792
Crude rubber	43,136,666

Rubber Association figures representing 75 per cent of the industry.

Financial and Corporate News

Firestone Tire & Rubber Co.

THE Firestone Tire & Rubber Co.'s sales of the parent and subsidiary companies in the United States for the fiscal year ended October 31, 1926, were $144,397,000 compared with $125,598,000 last year, or an increase of 15 per cent with a net profit for the year, after providing for depreciation, interest, Federal taxes and all other charges, of $7,622,339, from which a reserve for contingencies of $1,500,000 has been provided. After deducting dividends on preferred stock the net profit applicable to the common stock was $12.94 per share.

The profits of rubber manufacturing companies are influenced largely by the fluctuations in price of their basic raw materials, rubber and cotton, and a great deal of time and thought has been given in an endeavor to secure a more stable price on crude rubber.

During the year rubber has ranged in price from a low of 36 cents to a high of $1.23 and the price on that date was around $1.00 per pound. The operation of the British rubber restriction act gave 100 per cent releases on February 1 this year and rubber again dropped to 36 cents per pound. (Rubber is now selling around 37 cents per pound.) It is necessary to have purchases in the East, afloat, and stock in Akron equal to four months' consumption, and as the company uses approximately 10,000,000 pounds per month, it is very evident that these wide fluctuations in price made it a difficult year for large manufacturers.

It was claimed by the framers of the British restriction act of November, 1922, that one of the great benefits derived would be to stabilize the price of rubber at a fair level for both producer and consumer. Exports were restricted when the price fell below 12 pence (24 cents) and releases for exportation when the price went above 15 pence (30 cents). Restriction and releases were only adjusted quarterly and the entire plan was not sufficiently elastic to stabilize prices. The restriction policy has since been changed to much higher levels. Announcement was made April 26, 1926, that if in any quarter, beginning May 1, the London price failed to average 21 pence (42 cents) a 20 per cent restriction would become effective.

The price in the quarter ending October 31 failed to average 21 pence and a 20 per cent restriction went into effect November 1. October 25 the policy of April 26 of a 20 per cent restriction was confirmed and a further provision made that if the price failed to average 21 pence for any quarter, a further restriction of 10 per cent would go into effect, and there would be no additional releases until the average price was 21 pence for three consecutive quarters or 24 pence (48 cents) for one quarter. Therefore wide fluctuations and higher price levels are again possible.

This company, not only for its own protection but for the protection of the consumer, has joined with other rubber and automobile manufacturing companies to secure and establish a reserve stock of rubber in America.

Large quantities of cotton for use in 1927, 1928 and 1929 have been purchased. Cotton is now selling below the estimated cost of production and therefore these purchases will be to the advantage of the company and relieve in part the distress in the cotton growing districts.

Continued efforts are being made to have rubber grown under American control. Two of the directors, Carmon A. Myers, who has directed the Engineering Department for eighteen years, and Harvey S. Firestone, Jr., left for the Far East last January with engineers and other men experienced in rubber growing. They spent six months in studying the rubber growing conditions in British Malaya and the Dutch East Indies; also investigated the comparative practicability of growing rubber in the southern islands of the Philippines providing proper legislation could be secured which would encourage and protect large capital investments. They then went to Liberia to lay plans for the development of the million acres secured under a ninety-nine year lease. This lease has just been ratified by the Liberian Legislature and the report of these directors will be made on their return.

This year has seen the greatest advance in the installation of more modern and economical tire building machinery and conveying systems, designed principally by the company's own engineers. Extensive plant improvements have been made, including the completion of the new warehouse and shipping building, a fabric warehouse, and the installation of powdered fuel equipment in fourteen boilers, the remaining six to be installed this coming year.

These improvements enable uniform tires to be made at a great saving. This, together with the process of dipping the cords in a rubber solution, makes it possible to furnish tires which give exceptionally long mileage and each year brings greater demand for the company's products. An extension to Plant 2 is now being erected and equipped, which, when completed, will give a capacity of 45,000 tires and 50,000 tubes per day, and the company confidently feels it will make steady progress during the coming year.

HARVEY S. FIRESTONE,
President.

CONSOLIDATED BALANCE SHEET

At the Close of Business October 31, 1926

ASSETS

Current		
Cash	$9,188,881.45	
Receivables		
Customers' notes and accounts, less allowance for doubtful accounts, discounts, etc.	14,283,851.58	
Inventories		
Finished and in process goods, raw materials and supplies	22,590,204.41	$46,062,937.44
Other Assets		
Due from officers and employes on account of purchase of common capital stock, secured by 29,191 shares as collateral	$1,918,810.38	
Miscellaneous accounts and advances	338,898.84	
Stocks and bonds of other companies	125,923.00	2,383,632.22
Foreign Subsidiary Companies		
Capital stock and advances		5,463,249.73
The Firestone Park Land Co.		
House and lot accounts receivable, unsold real estate, etc.	$3,051,144.30	
Less mortgages thereon, bonds outstanding and accrued interest	2,327,916.43	723,227.87
Treasury Stock		
Preferred and common shares purchased at cost		159,109.39
Firestone Cotton Mills		
Land, buildings, machinery and equipment	$2,755,176.83	
Less: Mortgage bonds outstanding	2,000,000.00	755,176.83
Real Estate, Plants, Etc.		
Land, buildings, machinery and equipment, less allowance for depreciation		22,716,139.16
Deferred		
Prepaid insurance and taxes	$40,926.86	
Miscellaneous deferred items	284,493.89	325,420.75
		$78,588,893.39

LIABILITIES

Current		
Accounts payable		
For purchases, pay rolls, customers' credit balances, etc.	$ 4,864,019.72	
Accrued federal and local taxes, interest, etc.	1,558,836.04	$ 6,422,855.76

Reserve			
For general contingencies			$1,500,000.00
Capital Stock			
Preferred			
The Firestone Tire & Rubber Co.			
6% Cumulative:			
Authorized and issued	$10,000,000.00		
Less: retired	2,500,000.00	$ 7,500,000.00	
7% Cumulative:			
Authorized ($40,000,000.00)			
Issued	$20,000,000.00		
Less: retired	2,730,000.00	17,270,000.00	
Firestone Footwear Co.			
7% Cumulative:			
Authorized and issued	$ 1,000,000.00		
Less: retired	$9,300.00	940,700.00	25,710,700.00
Common			
Authorized ($25,000,000.00)			
Issued	$ 3,750,000.00		
Less: treasury	221,560.00	$ 3,528,440.00	
Surplus			
General surplus	$39,696,060.93		
Insurance account surplus	1,730,836.70	41,426,897.63	44,955,337.63
Note: Contingent liabilities			
Drafts for rubber in transit	$ 1,961,952.00		
Foreign drafts discounted	1,517,902.57		
			$78,588,893.39

New York Stock Exchange Quotations

December 21, 1926

	High	Low	Last
Ajax Rubber, com.	10⅜	9¾	10
Fisk Rubber, com.	17⅛	17⅛	17¼
Goodrich, B. F., Co., com (4)	43¾	43⅜	43¾
Goodyear Tire & Rubber, pfd. (7)	97¾	97½	97⅝
Intercontinental Rubber, com. (1)	14	14	14
Kelly-Springfield Tire, com.	11½	11	11⅛
Keystone Tire & Rubber, com.	⅞	¾	¾
Lee Rubber & Tire, com.	8	8	8
Norwalk Tire & Rubber, com.	4⅞	4⅞	4⅞
United States Rubber, com.	62¼	61½	62
United States Rubber, 1st pfd. (8)	108⅜	108⅜	108⅜

Akron Rubber Stock Quotations

Quotations of December 20, supplied by Otis & Co., Cleveland, Ohio

COMPANY	Last Sale	Bid	Asked
Aetna com.	17	16½	19½
Aetna pfd.	93	90	95
Falls com.	6½	..	6
Falls pfd.	18¾	..	18
Faultless com.	41½	40½	42
Firestone com.	115⅜	113½	116
Firestone 1st pfd.	102½	102½	..
Firestone 2nd pfd.	99	98½	99½
General com.	160	150	157
General pfd.	107½	101¾	..
Goodrich com.	53	..	..
Goodrich pfd.	97¾	..	..
Goodyear com. V. T. C.	27	..	..
Goodyear pfd. V. T. C.	110	..	..
Goodyear pr. pfd. V. T. C.	107	..	..
India com.	29¾	..	30
Miller com.	34	..	..
Miller pfd.	101	100½	101
Mohawk com.	24	20	21
Mohawk pfd.	74	..	68
Seiberling com.	20¾	21	21½
Seiberling pfd.	100	98	..
Star com.	11	..	10
Star pfd.	30	..	..
Swinehart com.	8½	..	..

Dividends Declared

COMPANY	Stock	Rate	Payable	Stock of Record
Aetna Rubber Co.	Pfd.	1¾% q.	Dec. 31	Dec. 16
Aetna Rubber Co.	Com.	.25 cents q.	Dec. 31	Dec. 16
Dominion Rubber Co., Ltd.	Pfd.	1¾% q.	Dec. 31	Dec. 17
Faultless Rubber Co.	Com.	.50 cents q.	Jan. 2, 1927	Dec. 15
Faultless Rubber Co.	Pfd.	1¾% q.	Jan. 2, 1927	Dec. 15
Firestone Tire & Rubber Co.	Com.	$1.50 q.	Jan. 20, 1927	Jan. 10, 1927
Firestone Tire & Rubber Co.	Com. Ex.	$1.00	Jan. 3, 1927	Dec. 20
Firestone Tire & Rubber Co.	6% Pfd.	$1.50 q.	Jan. 15, 1927	Jan. 1, 1927
Firestone Tire & Rubber Co.	7% Pfd.	$1.75 q.	Feb. 15, 1927	Feb. 1, 1927
Fisk Rubber Co.	1st Pfd.	$1.75q.	Feb. 1, 1927	Jan. 15, 1927
Fisk Rubber Co.	1st Pfd.cv.	$1.75q.	Feb. 1, 1927	Jan. 15, 1927
General Tire & Rubber Co.	Pfd.	1¾% q.	Jan. 1, 1927	Dec. 20
Goodrich, The B. F. Co.	Pfd.	$1.75 q.	Jan. 3, 1927	Dec. 15
Goodyear Tire & Rubber Co. of Canada	Pfd.	1¾% q.	Jan. 2, 1927	Dec. 15
India Tire & Rubber Co.	Com.	62½ cents	Jan. 1, 1927	Dec. 20
India Tire & Rubber Co.	Pfd.	1¼% q.	Jan. 1, 1927	Dec. 20
Miller Rubber Co.	Com.	$0.50 q.	Jan. 25, 1927	Jan. 5, 1927
Norwalk Tire & Rubber Co.	Pfd.	1¾% q.	Jan. 1, 1927	Dec. 20
Overman Cushion Tire Co.	"A" Com.	1½% q.	Jan. 1, 1927	Dec. 18
Overman Cushion Tire Co.	"B" Com.	1½% q.	Jan. 1, 1927	Dec. 18
Overman Cushion Tire Co.	Pfd.	$1.75 q.	Apr. 1, 1927	.....
Seiberling Rubber Co.	Pfd.	2% q.	Jan. 1, 1927	Dec. 20

New Incorporations

AMERICAN RUBBER PRODUCERS, INC., November 30, 1926 (Delaware), capital stock 10,000 shares, without nominal or par value. Incorporators: M. L. Rogers, L. A. Irwin, and William G. Singer, all of Wilmington, Delaware. Principal office, Wilmington, Delaware. To produce, manufacture, distribute, etc., gums, caoutchouc, crude rubber, gutta percha, copal, and any articles or goods manufactured therefrom.

ATLANTIC RUBBER CO., July 12, 1926 (Maryland), capital 200 shares of the par value of $50 each. Incorporators: Joseph L. Symonds, 3000 Granada avenue; Thomas E. Barrett, Jr., 3007 St. Paul street, both of Baltimore, Maryland; and Philip Epstein, 1717 58th street, Brooklyn, New York. Principal office, 3520 Philadelphia Road, Baltimore, Maryland. To deal in rubber goods.

BANNER TIRE CO., November 11, 1926 (Massachusetts), capital $2,500. Incorporators, officers, and directors: Julia Prince, president; Benjamin Prince, treasurer; and Pauline Prince, clerk; all of 74 Babcock street, Brookline, Mass. Principal office, Boston, Massachusetts. To manufacture, buy and deal in tires, rubber goods, and automobile accessories of all kinds.

BROOKS & KIP TIRE CO., December 13, 1926 (New Jersey), capital stock 300 shares without par value. Incorporators: George V. Reilly, Raymond J. Gorman, and Samuel C. Wood, all of 150 Broadway, New York City. Principal office, 516 Mercer street, Jersey City, New Jersey. To manufacture and deal in automobile tires and other accessories.

JAMES BUCHANAN, INC., November 29, 1926 (New York), capital stock 1,000 shares no par value. Incorporators: W. M. Wahlstad, J. K. Sinclaire and Vincent Westrup, all of 70 Fifth avenue, New York City. Principal office, Manhattan, New York. Rubber and gutta percha.

THE BUCKLEY RUBBER CO., November 1, 1926 (Indiana), capital $25,000. Incorporators: J. E. Buckley, Harry C. McIntyre and George Hachet, all of Auburn, Indiana. Principal office, Auburn, Indiana. Specialize in molded rubber goods and hard rubber specialties.

CONVERSE TIRE & RUBBER CO., November 9, 1926 (Massachusetts), capital $1,112,500. Incorporators and officers: Hugh Bullock, president; Hugh Bullock, treasurer; Francis H. Caskin, clerk, all of 392 Pearl street, Malden, Massachusetts. Directors: Hugh Bullock, Marquis M. Converse, John K. Converse, and William L. Burgess, all of 392 Pearl street, Malden, Massachusetts; A. Hellman, 212 West 54th street, New York City; D. Stearn, Market street, Paterson, New Jersey; C. Egolf, 1035 Richmond street, Cincinnati, Ohio. Principal office, Malden, Massachusetts. To manufacture, buy, sell, and deal in automobile tires and tubes, parts and accessories, goods of all kinds wholly or partially made of rubber, and generally to conduct a rubber business.

HITCHNER TIRE CORPORATION, November 20, 1926 (Delaware), capital stock $500,000, par value $10. Incorporators: J. Vernon Pimm, Philadelphia, Pennsylvania; E. M. MacFarland, Camden, New Jersey; R. L. Spurgeon, Wilmington, Delaware. Principal office, with the Corporation Guarantee & Trust Company, 927 Market street, Wilmington, Delaware. To manufacture, buy, sell and deal in tires, rims, rubber goods, etc.

JONES & POLSON, INC., November 19, 1926 (Massachusetts), capital $20,000. Incorporators, officers and directors: Robert P. Polson, president, and Robert C. Polson, both of 390 Pond street, South Weymouth, Massachusetts; Herbert M. Jones, treasurer and clerk, 16 Ridgemont street, Allston, Massachusetts. Principal office, Rutherford avenue and Miller street, Charlestown, Massachusetts. To sell and deal in automobile tires and accessories.

MAIN AUTO TIRE & SUPPLY CO., INC., December 11, 1926 (New York), capital $5,000. Incorporators: Margaret Martin, Martin Holmes, and William Mansfield, all of 943 Eighth avenue, New York City. Principal office, Manhattan, New York. To deal in tires and automobile accessories.

THE MONARCH RUBBER CO., INC., December 6, 1926 (New York), capital stock 250 shares, no par value. Incorporators: Newell C. Shepard, 96 Harrison avenue, Montclair, New Jersey; John F. Wharton and Odin Gustafson, both of 34 Pine street, New York City. Principal office, Manhattan, New York. Rubber goods.

NATIONAL TIRE CO., December 16, 1926 (New Jersey), capital stock $100,000, divided into 1,000 shares of the par value of $100 each. Incorporators: Charles Lishansky and Celie Lishansky, both of 87 New street, New Brunswick, New Jersey; and Charles Shapiro, 537 Powell street, Brooklyn, New York. Principal office, 214 Smith street, Perth Amboy, New Jersey. To deal in automobile tires, tubes and accessories.

NEW YORK DOUBLE TREAD TIRE, INC., December 13, 1926 (New York), capital $5,000. Incorporators: William Goldish and Mary Goldish, both of 243 West 48th street, New York City; and Belle Lewis, 1328 Broadway, New York City. Principal office, Manhattan, New York. Tires and auto accessories.

NEW YORK RUBBER TIRE CO., INC., November 15, 1926 (New Jersey), capital stock of $2,000, divided into 2,000 shares of the par value of $1 each. Incorporators: Carmela Dorso and Michael Dorso, both of 14 Marshall street; and Robert Biondi, 80 Market street, all of Paterson, New Jersey. Principal office, 80 Market street, Paterson, New Jersey. To deal in automobile tires and accessories.

PERRAM TIRE CO., November 19, 1926 (Oklahoma), capital $2,500. Incorporators: Florence L. Perram, A. K. Perram, and J. W. Kuhns, all of Tulsa, Oklahoma. Principal office, Tulsa, Oklahoma. To deal in automobile accessories of all kinds and to do general repairing.

REICH TIRE STORES, December 2, 1926 (New Jersey), capital stock $125,000, divided into 1,250 shares of the par value of $100 each. Incorporators: Aaron Reich, Anna Reich, and Sarah Port, all of 279 Central avenue, Newark, New Jersey. Principal office, 24 Commerce street, Newark, New Jersey. To deal in rubber tires and tubes, automobile accessories, etc.

RUBBER PROCESSES, INC., September 23, 1926 (New York), capital $100,000. Incorporators: J. T. Asphury, C. J. Ferrie and F. C. Taylor, all of 120 Broadway. Principal office, New York City. To manufacture rubber goods.

SUFFOLK TIRE & RUBBER CO., INC., November 23, 1926 (New York), capital $300,000, par value $10. Incorporators: Mark Frackman, Joseph H. Robins and Evelyn Klein, all of 51 Chambers street, New York City. Principal office, Jamaica, Long Island, New York. Tires, etc.

SWINEHART TIRES SALES CO., December 13, 1926 (New Jersey), capital stock $50,000. Incorporators: Raymond H. O'Connor, 721 Magie avenue, Elizabeth, New Jersey; E. W. Rugg, 500 Summer avenue, Newark, New Jersey; Albert G. Tompkins, 230 Central avenue, Jersey City, New Jersey. Principal office, 150 Baldwin avenue, Jersey City, New Jersey. To deal in and manufacture automobile tires and other accessories.

The Rubber Industry in America

East and South

ON January 3, 1927, the Meyer & Brown Corporation, 347 Madison avenue, New York, N. Y., dealer in crude rubber, will begin business as the successor of Meyer & Brown, Inc. The present staff of the old organization will be taken into the new one, whose officers are the following: Otto Meyer, president; W. H. Dickerson, vice president and treasurer; Adolph Meyer, secretary; Richard Meyer, assistant treasurer; E. M. Salzberg, assistant secretary; and R. T. Sloss, cashier.

On December 1, 1926, P. V. L. Bouton became associated with Henderson Brothers & Co., Inc., 60 Beaver street, New York, N. Y., brokers in crude rubber.

A technical department with a complete rubber laboratory has been established by Wishnick-Tumpeer, Inc., 251 Front street, New York, N. Y., dealer in chemicals and oils for the rubber industry. The new division will be in charge of J. M. Dawson, formerly connected with the Dunlop Rubber Co. Rubber manufacturers are offered the use of this laboratory in solving their particular problems.

Rogers, Brown & Crocker Bros., Inc., 21 East 40th street, New York, N. Y., dealers in crude rubber, announce that Hutcheson Page has been made a member of the company's board of directors, to fill the vacancy caused by the death of D. Fairfax Bush. Mr. Page has been head of the organization's rubber department since it entered this particular field.

The Palmerton Publishing Co., publisher of the *Rubber Age*, is now occupying its new offices in the Fisk Building, 250 West 57th street, New York, N. Y.

Dr. A. A. Somerville, vice president of R. T. Vanderbilt Co., 50 East 42nd street, New York, N. Y., will attend the Seventh Annual Rubber Exhibition to be held at Paris, France, January 21 to February 6. By special invitation he has prepared an article on the history of the American rubber industry to be published in the *Golden Book*, official organ of the exposition. Dr. Somerville plans to visit Italy, Switzerland, Germany, Holland, and England, returning to the United States April 1.

The R. T. Vanderbilt Co., 50 East 42nd street, New York, N. Y., will be represented at the Seventh International Rubber Exposition to be held at Grand Palais, Paris, France, January 21 to February 6, by an exhibit of accelerators, Age-Rite, thermatomic carbon and other compounding ingredients. The English, French, and German representatives of the Vanderbilt Company will also make exhibits. A feature of the exhibit will be 100 manufactured rubber articles, containing Vanderbilt products in their composition, and furnished by a number of the largest rubber goods manufacturers in the United States.

The board of governors of the Rubber Exchange of New York has been enlarged from 9 to 15 members. The new members are L. D. Tompkins, J. W. Rowland, Herman Muehlstein, W. L. Harriss, F. H. Robinson, Jr., and Robert L. Baird. L. D. Tompkins is vice president of the General Rubber Co., a subsidiary of the United States Rubber Co.

On November 1 the depots of the Kelly-Springfield Tire Co., at Brooklyn, New York, and Grand Rapids, Michigan, were made direct factory branches, with Fred Jordan and A. W. Taylor respectively in charge. Both these newly appointed managers have been connected with their divisions for a number of years.

The P. & B. Rubber Manufacturing Co., Inc., 36-38 Hobson avenue, Laurel Hill, Long Island, New York, specializes in the production of rubber heels and soles, the present output being approximately 60,000 pairs of heels weekly. R. Blando is treasurer.

C. F. Hanson, recently with the Habirshaw Cable Co., Yonkers, New York, is now sales engineer with R. T. Vanderbilt Co., 50 East 42nd street, New York, N. Y. His special field will be insulating oils containing anti-oxidants as adapted to the electrical industries. The company has equipped an electrical testing laboratory in conjunction with its rubber laboratory.

The New York Rubber Co., Beacon, New York, will issue $300,000 in bonds, to be secured by a mortgage on its plant, while a part of the proceeds of the sale of the bonds will be used to improve the Beacon organization's property and for the satisfying of former obligations.

B. L. Botsford has been appointed special representative of The Star Rubber Co., Inc., Akron, Ohio, with headquarters at Plattsburg, N. Y.

Clarence Jensen has been appointed sales manager of The Yale Tire & Rubber Co., New Haven, Connecticut, he having formerly served as branch manager. For the past two years he has had charge of the company's eastern territory, including eastern Connecticut, Massachusetts, and Rhode Island.

The tire fabric mill maintained at Goodyear, Connecticut, by The Goodyear Tire & Rubber Co., Akron, Ohio, has during the last four years been operating on a 55-hour week basis, with 459 workers at present employed. An addition to the Boston branch building at 63-67 Brookline avenue will supply 25,000 more square feet of floor space, and greatly increase the branch's facilities.

The Philadelphia Rubber Works Co., Akron, Ohio, has let contracts for doubling the monthly capacity of its plant at Oaks, Pennsylvania, the increase being from 2,000,000 pounds to 4,000,000 pounds. J. S. Lowman is first vice president.

The Pennsylvania Rubber Co., Jeannette, Pennsylvania, has for some time been operating its plant at capacity. During the past few months additional equipment has been installed in order to extend the factory production next year of tires and tubes. George W. Daum is vice president and general manager.

The Union Rubber Co., Zelienople, Pennsylvania, was incorporated in July, 1923, and since that time there has been a steady growth, both in production of tires and volume of sales. The following changes in personnel have been made: Charles E. Bortz, vice president of the organization, was appointed general manager; Robert Williams, formerly of the Diamond Rubber Co., was made plant manager; and N. Zirin became sale manager. N. W. Brownfield will continue in his present capacity of business manager.

The Struthers-Wells Co., Warren, Pennsylvania, manufacturer of special machinery for the rubber industry, has established a Philadelphia office in the Liberty Trust Building, Broad and Arch streets, with W. L. DeLaney in charge.

The Sarasota Wholesale Rubber Co., Sarasota, Florida, is conducting a jobbing business in the western and central parts of the state, and is handling the lighter types of automobile accessories. U. K. Butler is president.

Machinery is being installed in the recently completed tire fabric plant at Thomaston, Georgia, known as Martha Mills, and operations will begin during the early part of January. The new factory, a three-story building measuring 130 by 430 feet, is to produce exclusively for The B. F. Goodrich Co., Akron, Ohio. W. H. Hightower is president of Martha Mills.

Sales Manager Pennsylvania Rubber Company

Associated for twelve years in various capacities with the Pennsylvania Rubber Co., Jeannette, Pennsylvania, and at present serving as the organization's sales manager, Lester J. Waldron has had a wide experience in the rubber industry.

Lester J. Waldron

Born June 15, 1888, in Boston, Massachusetts, Mr. Waldron received his earliest education in the schools of that city, later entering Dartmouth College, and being graduated in the class of 1911. His first association with the rubber industry was in his work as a salesman for the Goodrich organization, being employed by that company from 1911 to 1914. He became connected in 1914 with the Pennsylvania Rubber Co., also as a salesman, while from 1919 to 1925 he was in charge of the company's Boston branch. During the war he was a member of the Government Air Service, and, after returning to business duties, he was in 1920 placed in charge of the Pennsylvania company's New England territory. In 1925 he was advanced to the position of district manager for the entire Northeastern territory, the field including all branches as far west as Chicago. He has served as sales manager from January 1, 1926, to date.

Mr. Waldron is a member of the Dartmouth Club of Boston, and the Greensburg (Pennsylvania) Country Club. An enthusiastic Mason, he is connected with all Masonic bodies, including the Mystic Shrine. He resides in Greensburg, Pennsylvania.

New Jersey

Production in most branches of the New Jersey rubber industry was below normal during the month of December, but better conditions are looked for at the beginning of the new year. The mechanical output continued good throughout the late fall and early winter and is expected to continue so. Some of the Trenton plants are now working on orders for cotton and molded hose for the early spring delivery which will keep the mechanical end up very well. Although there was a cut of 15 and 20 per cent in tires and tubes the demand was not large, due to the inclement weather. Tires and tubes are now down to rock bottom prices and the plants are expected to be busy again when spring dating begins. The footwear trade is reported as being particularly good.

The Luzerne Rubber Co., Trenton, New Jersey, reports that business in the hard rubber line is not very brisk at the present. The concern looks forward to better conditions within the next few weeks.

The Combination Rubber Co., Trenton, New Jersey, announces that orders dropped off somewhat during the past month due to unfavorable weather conditions.

The Murray Rubber Co., Trenton, New Jersey, which was very busy for some time, is now operating but 80 per cent. The mechanical end of the business is reported to be very good. The company expects to be running normally when spring dating on tires and tubes begins.

The Essex Rubber Co., Trenton, New Jersey, reports that while business for December was not very brisk yet it was up to the standard for that month of the year. The recent inclement weather is expected to have good effect upon the heel trade.

The Pocono Rubber Cloth Co., Trenton, New Jersey, is very busy turning out golf bags for the spring trade and has many orders on hand. The concern is not very busy in the departments where rubber cloth for automobiles are manufactured.

Federal Judge Bodine has issued an order directing that receivers' and lawyers' fees totaling $90,000 must be paid out of the funds of the bankrupt Empire Tire & Rubber Corp., Trenton, New Jersey. The order approved the final accounting of the receivers, H. Arthur Wood and C. Edward Murray, Jr., and directed exceptions filed against the receivers' accounts by a committee of creditors be dismissed. Mr. Wood will receive the sum of $25,500, while Mr. Murray will get $15,500 for their services as receivers. Counsel for the receivers will receive $30,000 and $17,500 goes to solicitors for the creditors' committee. A clause in the decree directs that a final dividend totaling 42.5 per cent shall be paid to all creditors who have been allowed proper claims. The federal order terminates litigation that has involved the Empire corporation since 1921.

Whitehead Brothers Rubber Co., Trenton, New Jersey, reports good business with bright prospects for the winter and early spring season. The company's business for December was the largest during any month of the year.

Mr. and Mrs. Charles E. Stokes, Jr., have returned from a trip to Chicago. Mr. Stokes is superintendent of the Home Rubber Co., Trenton, New Jersey.

The deLaski & Thropp Circular Woven Tire Co., Trenton, New Jersey, manufacturer of tire making equipment, has increased its capital stock to $500,000.

General C. Edward Murray, president of the Crescent Insulated Wire & Cable Co., Trenton, New Jersey, spent several days gunning at Green Pond, South Carolina.

The United Rubber Machinery Exchange, 311-317 Mt. Pleasant avenue, Newark, will erect a large office building and warehouse at 317-323 Frelinghuysen avenue, Newark, New Jersey, equipped with all modern improvements for the handling of rubber machinery. The company plans to occupy its new premises during the coming Spring. Executives are: Sigmund Liebstein, president and treasurer; and Milton J. Liebstein, secretary.

The Livingston Tire Co. has purchased the old St. Peter's Orphan Asylum in Livingston street, Newark, New Jersey, for $35,000. The new owner will use the building for a tire establishment.

Massachusetts

Rubber footwear activity has overshadowed all other divisions in the rubber industry of Massachusetts during December. With the heaviest snowfall for the month for twenty years, unprecedented demand for rubber shoe products has been felt by all producers in this section. When the storm of December 5 came, retailers were caught with low stocks of merchandise, and the shipping departments of the footwear companies were literally swamped with rush demands for goods. As a result the inventories of finished goods in the hands of the manufacturers now stand at the lowest point they have been for years, and capacity manufacturing operations are assured for some time to come.

While little change has been made in production schedules which were already at the peak, the seasonal let-down which usually comes after the first of the year will hardly be felt to any degree. A complication of the situation was injected on December 16, however, when one of the larger companies announced that it would rebate the shoe dealer the difference between old and new prices on all goods shipped between that date and January 1. This has brought home to the shoe manufacturers the folly of the time-

honored custom in the industry of changing prices on the first of the year. This practice originated in the days when the salesmen were able to book considerable advance business after January 1. But with the hand-to-mouth buying policy now in vogue, this condition no longer exists, and it would be more satisfactory for all if the price changes were made two or three months later. While January 1 prices have not yet been announced it is practically certain that a ten per cent reduction will be put in effect based on lower cotton and rubber values.

The samples of footwear for 1927 will see a more decided trend toward novelties, particularly in gaiters. Tweeds, fancy colored worsteds and cotton fabrics are being worked up into attractive combinations in the type of gaiter similar to the Cambridge Rubber Co.'s Raynboot, United States Rubber Co.'s Radcliffe and Converse Rubber Shoe Co.'s Bobbette. The demand on these types of shoes has been far in excess of the supply.

In the Midwest the snowfall has not been as heavy as in the East, but the call for novelty gaiters has been equally heavy, which emphasizes the fact that the overshoe is more firmly entrenched as an essential and fashionable article of wearing apparel.

Several personnel changes at the Firestone Footwear Co., Hudson, Massachusetts, are of interest. C. H. Baker, vice president, has resigned to devote his entire time to his other business interests. Charles O'Hearn, who is well known in the East through his football, baseball, and hockey career at Yale a few years ago, has been sent from Akron to join the local organization. H. C. Cressinger remains as footwear sales manager in the East, and C. P. Firestone continues as superintendent. All records for shipments were broken at the Boston branch of the company following the recent storm.

The Hood Rubber Co., Watertown, Massachusetts, found itself in a more favorable position as regards stocks of merchandise than some of the other companies, and profited heavily during the recent storm. During the second week in December, more goods were shipped than during the entire month of November.

Production on the new line of tires and tubes at the Converse Tire & Rubber Co., Malden, Massachusetts, has been started, and the President cord and second line of Alpine tires and tubes are being received very favorably by the trade. W. L. Burgess is vice president and general manager.

The entire plant with the exception of the office building of the Appleton Rubber Co., reclaimers, of Franklin, Massachusetts, was destroyed by fire on the morning of December 2nd. Damage is estimated at $250,000. Plans for rebuilding have not yet been announced. Local reclaimers are cooperating with the management in the present emergency.

Plants of the United States Rubber Co., whose fiscal year ends January 1, closed December 31 and January 1 for inventory, the shortest closing period for this purpose in many years. The National India Rubber Co., Bristol, Rhode Island, where tennis is manufactured, closed December 23 and opened December 27 also.

The Charles River Bleachery in Needham, Massachusetts, has been sold to J. E. Cochrane & Sons who are installing machinery for printing. This plant was formerly owned and operated by the Needham Tire Co., which went out of business in 1921.

The Haartz-Mason Rubber Manufacturing Co. has started operations in its new factory at Watertown, Massachusetts, and reports good demand for its products.

F. W. Lingley, purchasing agent of the American Hard Rubber Co., New York, N. Y., has been honored by the National Association of Purchasing Agents for his work in preparing a history of the ten years existence of the association. A resolution commending him for his effort has been adopted, handsomely engrossed, and framed, and the history is to be published in book form. Mr. Lingley was one of the original ten men who laid the foundations of the association in 1913, one of the six incorporators in 1915 and was the first second vice president of the association.

John Bill, formerly stitching room superintendent at the National India Rubber Co., Bristol, Rhode Island, has resigned his position at the Cambridge Rubber Co., and assumed charge of the quarter, cement, and stitching departments at the Converse Rubber Shoe Co., Malden, Massachusetts.

Mechanical goods factories have had record business this fall. The Boston Woven Hose & Rubber Co., Cambridge, Massachusetts, is operating at capacity, and the Revere Rubber Co., Chelsea, Massachusetts, United States Rubber Co. subsidiary, is running full time.

The Alfred Hale Rubber Co., Atlantic, Massachusetts, specializing in the manufacture of Rajah crepe rubber soles and Halesole composition soles, is finding it necessary to enlarge its plant by the construction of an additional one story building. David A. Cutler is president and treasurer.

John M. Bierer, technical superintendent of the Boston Woven Hose & Rubber Co., Cambridge, Massachusetts, has accepted an invitation to give an address on May 2, 1927, before the Institution of the Rubber Industry, in London.

Many of the local plants closed down for all or part of December 24, to allow the employes to enjoy the Christmas holidays.

Rubber buyers in this section received the news of the crude rubber buying organization with interest, and the general consensus of opinion is that the move will benefit the entire industry by preventing wide price movements.

Tire and tube plants are getting ready to increase operations after the first of the year, and there is a general feeling of confidence as to the volume of business ahead in 1927.

The Davidson Rubber Co., P. O. Box 48, Boston, Massachusetts, is celebrating the seventieth anniversary of the establishment of the organization. The company, which is headed by Alexander M. Paul, specializes in the manufacture of druggists' rubber sundries, its "Banner" line of goods having been marketed since 1857.

Rhode Island

The year 1926 was a slight improvement over the preceding twelve months for all branches of the rubber industry in Rhode Island. Although the year opened in a somewhat apathetic situation, as the months advanced the general conditions changed and the final quarter was entered upon with the industry operating on a sounder basis than had been experienced for a long period. Practically all the plants are busy at the present time with excellent prospects of a steady continuance for some time to come.

Inventories of the stocks on hand, both raw and finished, show a low margin and the evident increase in the movement of products along the regular channels gives cause for much encouragement. Druggists' sundries have been particularly active while all kinds of novelties have kept the departments producing them operating on good scheduled cards.

An interesting announcement was recently made here concerning the Goodyear Cotton Co., at Danielson, Connecticut, a subsidiary of the Goodyear Tire & Rubber Co. This plant has recently completed an unusual record for overtime operations, having operated for four years with day and night shifts, 22 hours a day being the regular schedule. One hundred and twenty-five employes have been working nights at carding, spinning, twisting and weaving in the manufacture of tire fabrics. The day force consisted of 350 employes.

At a hearing held in Providence on November 29 before Examiner Williams of the Interstate Commerce Commission, the contention of the Manville-Jencks Co., of Pawtucket and of the Fall River Chamber of Commerce and the Fall River Cotton Manufacturers' Association, that there is a distinction between

cotton piece goods and cotton tire fabrics was unqualifiedly supported. The question has been pending for the past two years. At the conclusion of a six hours' hearing the committee adjourned after granting the attorneys until January 15 to file briefs.

The C. & C. Rubber Co., 117 Point street, Providence, Rhode Island, is engaged in the manufacture of raincoats for men, women, and children. A branch establishment has been opened at 121 Benefit street, Woonsocket, Rhode Island.

A volunteer fire department has been organized at the plant of the National India Rubber Co., Bristol, and the members composing it have been selected from the various departments. John Grabert has been elected chief; William Simmons, deputy chief, and Daniel F. Dwyer, secretary.

Fisk Rubber Co. has recently removed from 134 Fountain street, Providence, after an occupancy of more than ten years, to larger quarters at 838 Westminster street. The new quarters are fitted up with every up-to-date equipment and convenience for the conduct of a tire business.

Bourn Rubber Pays Dividend

Creditors of the Bourn Rubber Co., of Providence, Rhode Island, have been receiving payment of a third dividend of 4½ per cent authorized by a decree entered in Superior Court by Presiding Justice Willard B. Tanner. This makes dividends aggregating 25 per cent that have already been paid, the court was informed at the hearing and another small dividend is expected later. The counsel for Zenas W. Bliss, receiver of the company, filed the petition seeking permission to pay the third dividend and also sought payment of $1,000 to Arthur A. Thomas, as special master, who held hearings on disputed claims; $4,000 additional counsel fee and $2,800 additional for the receiver. The court was informed that counsel had already received $3,000 on account and the receiver had had $2,200 on account. Payment of the fees was authorized under the decree as asked for.

The affairs of the Bourn Co. came before Presiding Justice Tanner later in a more specific manner through a hearing on exceptions to the master's report in connection with a claim of Augustus O. Bourn Jr., New York attorney and son of the late Augustus O. Bourn, founder and for many years manager and president of the Bourn Co., of $25,693 against the concern. Justice Tanner, after reserving the decision a few days, later allowed the claimant $9,650. He found that the claimant's estimate of the value of his services as $20,000 for a period of more than six years was fair and reasonable, but as certain deductions were to be made, allowed the claim in the sum of $9,650. The court refused to allow interest upon such a running account, and declared that the claimant's failure to keep a record of his expenses while serving the concern prevented granting the claim for expenses.

Ohio

While automobile tire production has increased slightly within the past few weeks and rubber footwear sales are heavy, Ohio rubber factories on the whole still are operating only slightly above 85 per cent of capacity. Demand from retail tire dealers has not been as large as was expected, and the slowing down of automobile plants has resulted in curtailment of orders for original tire equipment.

In the Akron district output of tires and tubes is less than 100,000 a day, compared with 130,000 at the year's peak in August. The big companies, like Goodyear, Goodrich, Firestone and Miller, have curtailed operations from 15 to 20 per cent. More drastic reductions have been necessary with some of the smaller producers.

That the industry is in a prosperous condition is seen in recent developments of a constructive nature. Among these are the formation of a large crude rubber buying organization in which Akron manufacturers play an important part; expansion plans and new building projects announced by Goodyear, Firestone, General and others, and the predictions of well-informed authorities that tire sales in 1927 will be at least 15 per cent higher than they were this year. The demand for tires will be accelerated also, it is believed, by a larger automobile production next spring than was anticipated.

A bright spot in the industry just now is the enormous rubber footwear business being done by Goodrich. More than 35,000 pairs of boots and shoes are being turned out at the Goodrich plant in Akron, and reserve stocks have been greatly depleted. The growing popularity of "Zipper" boots has been a boon to Goodrich's footwear business, and the demand has exceeded the supply in some lines. A new "Lo-Zipper" for women was put on the market this fall.

The year just closed has been an off year for the Akron rubber industry in general. Sales of some of the companies have been larger, but profits have been decidedly lower, owing to the sharp break in the crude rubber market from above $1 a pound to a low of 36 cents in a comparatively short time. Rubber manufacturers have been forced to absorb inventory losses running into millions of dollars. The five tire price increases of 1925 were practically wiped out by three drastic price reductions. The first quarter of the year was the worst period than for any time since 1921. There was some improvement in the second quarter, but tire dealer sales were between 4,000,000 and 5,000,000 casings less in the first half year than they were in the corresponding period of 1925, despite the fact that nearly 4,000,000 more motor vehicles were on the road.

July and August were good months for the industry, sales of tires mounting steadily. There was a tapering off in September again, owing to unseasonable motoring weather. The uncertainty regarding British restriction rules and the unused coupons resulted in a falling crude rubber market and a clamor from the public and dealers for lower tire prices, and the third cut of the year was put into effect November 15. Despite these difficulties, Akron authorities generally agree that tire sales will be 15 per cent or more larger in 1927 than the preceding year.

The Mason Tire & Rubber Co., Kent, Ohio, announces the removal to larger quarters by its Columbus, Ohio, branch, the new location being 242 North Third street. Norman H. Keeling, who has been appointed branch manager, has been previously serving the company in a similar capacity at Cincinnati and Memphis, Tennessee.

E. C. Lowney, credit manager of the India Tire & Rubber Co., Akron, Ohio, has returned to that city after a six weeks' business trip to Denver, Kansas City, Chicago, and St. Louis.

On December 8 four young men sailed on the *Campania* from New York for Monrovia, Liberia, for the purpose of supervising the growing of rubber in that country. They are being sent by the Firestone Plantations Co., Akron, Ohio, and will remain away for eighteen months. The names are: John Tilton, Harold Hoch, W. H. Douglas, and Raphael Van Neste.

C. A. Jones, who has been appointed assistant sales manager of The Seiberling Rubber Co., Barberton, Ohio, has been associated with the industry for the past twenty years, his previous connections having been with the Pennsylvania and Goodyear organizations. Since the founding of the Seiberling Company in 1921, he has served as sales manager of its Akron branch. Colonel J. L. Cochrun will succeed Mr. Jones in the Akron division.

H. B. Hankinson has been made general sales manager of the Star Rubber Co., Akron, Ohio, succeeding D. A. Grubb, who recently resigned. Mr. Hankinson has been identified with the industry for over 20 years, his first position being with the Diamond Rubber Co. More recently he was in charge of the New York and Boston branches of the Mohawk Rubber Co.

L. H. Shepherd, recently vice president of the Racine Horseshoe Tire Co., Racine, Wisconsin, is now attached to the staff of

L. C. Rockhill, sales manager of the Goodyear Tire & Rubber Co., at Akron, Ohio.

Jacob Pfeiffer, president of the Miller Rubber Co., Akron, Ohio, is on a tour of the world and will visit numerous Miller distributers abroad.

The Goodyear Tire & Rubber Co., Akron, Ohio, has announced the proposed construction of a factory near Sydney, Australia, which should be in operation by December of next year, and have a capacity of 1,000 tires and tubes daily. Officers who will direct the operation of the new plant are: W. G. Kither, vice president; William Urquhart, factory manager; Robert C. Metzler, secretary and treasurer; A. J. Slay, purchasing agent; and B. M. Morehead, construction engineer.

Completion of the 100th Goodyear built airship was announced December 16 at Akron. The ship was made for the United States Army Air Corps, under the direction of J. F. Cooper, head of the Balloon Department. It is a T C type training ship of 200,000 cubic feet capacity, 195 feet long, capable of carrying a crew of 8 to 10 men at a mile-a-minute clip. The 12-year-old Akron balloon department has manufactured 100 dirigibles, 100 racing balloons, 1,000 kite or observation balloons, 1,000 advertising balloons, 1,000 target balloons, and hundreds of miscellaneous balloon bags and parts. In addition to leading the world in non-rigid airship construction, Goodyear has built successful semi-rigid ships and through the Goodyear-Zeppelin Corporation, a subsidiary, is planning rigid airship building, making Akron the world's lighter-than-air craft manufacturing center.

An additional building, planned to increase the factory production by 50 per cent, is being erected by The Seiberling Rubber Co., Barberton, Ohio. The new structure, measuring 280 by 80 feet, and two stories in height, is to be completed about May 1, 1927. Sales for the first nine months of 1926 were well over $12,000,000, and will probably total for the entire year more than $16,000,000. The plant is being run on a three-shift schedule.

The Goodyear Tire & Rubber Co., Akron, Ohio, is building two plant additions at a cost of more than $700,000, which will increase the factory capacity next year to well over 50,000 casings and 60,000 tubes a day. A peak of 45,000 tires a day was reached last August.

The Firestone Tire & Rubber Co. is building an addition to the Akron Plant 2, where small-size tires are made. This will increase the entire plant's capacity to 45,000 tires and 50,000 tubes a day. Firestone has just completed a new shipping warehouse and a fabric warehouse.

William O'Neil, president of the General Tire & Rubber Co., Akron, Ohio, states that if beefsteak cost ten cents a pound, eggs a dime a dozen and butter eight or ten cents, they would be on a footing with tire prices now, based on the cost of living. Tires are now cheaper in dollars and cents than they have ever been,—cheaper even than they were on a ten cent crude rubber basis. It will probably be a long time before auto tires will again be as low in price as they are now. It is not likely that there will be any price change immediately but it is altogether logical that the next revision of prices will be upward.

The Firestone Steel Products Co., Akron, Ohio, reports a total production for 1926 of 6,000,000 rims for automobiles, in the manufacture of which 63,000 tons of steel were required.

The Xylos Rubber Co., Akron, Ohio, reclaimed and sold 45,000,000 pounds of rubber, double the output of last year.

As a result of record breaking sales for the fiscal year ended October 31, the Firestone Tire & Rubber Co., Akron, Ohio, now ranks second in point of automobile tire production. The annual report shows that sales of the parent and subsidiary companies in the United States were $144,397,000, compared with sales of $125,598,000 in 1925, an increase of 15 per cent. Net profit, after providing for depreciation, interest, Federal taxes, and all other charges, was $7,622,339, from which a reserve for contingencies of $1,500,000 has been provided. After deducting dividends on preferred stock, the net profit applicable to the common shares was $12.94 a share. Directors reelected the following officers: Harvey S. Firestone, president; John W. Thomas, vice president; Stacy G. Carkhuff, secretary; John J. Shea, treasurer; Bernard M. Robinson, assistant secretary; Ralph S. Leonard, assistant treasurer, and Homer C. Campbell, assistant treasurer. All directors were also reelected.

William Y. Duncan has been appointed manager of tire factory sales for The Williams Foundry & Machine Co., Akron, Ohio. During the past thirteen years he has been in charge of mechanical engineering for the Lee Tire & Rubber Co., and later for the Fisk organization.

Contract for the erection of a one-story manufacturing building has been awarded by the Ohio Rubber Co., Willoughby, Ohio. The company manufactures rubber products used in automobile manufacturing. A running board with rubber mat vulcanized on the metal was recently developed, according to C. E. Hyke, general manager.

Judge S. D. Kenfield's ruling in Common Pleas Court, Akron, Ohio, that the Laura L. T. Weiss suits against the present Goodyear Tire & Rubber Co., management and its $85,000,000 refinancing plan of 1921, were not settled by Common Pleas Judge William J. Ahern, Jr., upon evidence heard by him, but were merely held in abeyance and may still be taken before the court and threshed out in detail. This is considered a victory for the Frank A. Seiberling faction of Goodyear stockholders who have started several suits to wrest control of the company from Dillon, Read & Co.

Tire Dealers and Manufacturers Confer

At conferences held in Akron, Ohio, December 15 and 16, between executives of leading rubber companies and the new directors of the National Tire Dealers' Association, ways and means effecting better cooperation between dealer and manufacturer were discussed. The N.T.D.A. directors subscribed $500 each to aid in organizing the association on a sound financial basis. Plans were outlined to educate the dealer along the lines of doing business in a business way whereby he will be insured a fair return for his money and effort. The dealer also will be urged to work with the manufacturer and his representative.

President Hubert V. Eva, of the N.T.D.A., said he hopes to bring about a condition whereby the public will recognize the insignia of the association as representing good, reliable merchants.

Firestone-Liberia Lease Ratified

Final ratification by the Liberian Legislature of a tentative 99-year lease on 1,000,000 acres of land has removed the principal obstacle in the path of the Firestone-Liberia Plantations Co. Under a semi-official agreement with C. B. D. King, president of Liberia, and Edwin Barclay, secretary of state, Firestone expeditions already have entered the country, and have started harbor and sanitary improvements at Monrovia, preparatory to actual plantation work in the jungle. Heretofore the company has proceeded cautiously and has not gone ahead with the development as rapidly as they otherwise would have done. The company is now using 5,000 natives in clearing the jungle, and eventually will employ some 300,000. At least 10,000 acres of land there will be under cultivation by the end of next year.

Mr. Firestone states that a maximum production of 200,000 tons of rubber annually will be raised in Liberia, or about one-half of the world's present output. Rubber shipped to Akron from a 2,000 acre plantation under cultivation near Monrovia, which was abandoned by the British some years ago, and taken over by Firestone, has been sufficient to pay for most of the development expenditures in the current year. Harvey S. Firestone, Jr., who has been making a survey of conditions in Liberia, is expected to return in January. Carmon A. Myers, who accompanied him, has already returned.

Midwest

The Carl A. Judsen Manufacturing Co., 4107-4111 West Kinzie street, Chicago, Illinois, producer of rubber goods, is building a factory twice that of the original building, which last October was damaged by fire. The new structure will be completed in a few weeks, and thoroughly modern machinery will be installed. Leroy Goldstone is secretary.

On June 1, 1926, the Vulcanizers Material Co. moved into its new factory at 310-312 Winter street, Grand Rapids, Michigan. Although the new plant provided larger and better accommodations, the company has already found it necessary to build an addition. A. Warsaw is general manager.

The Guarantee Tire & Rubber Co., Inc., 211-213 South Illinois street, Indianapolis, Indiana, is opening a new branch at 1210 South Meridian street, Anderson, Indiana, where a complete line of Diamond and India tires as well as accessories will be carried. The organization is maintaining a jobbing and retailing business, its four subsidiaries being located in the following Indiana towns: Kokomo, Marion, Muncie, and Richmond. W. W. Kuhn is secretary and treasurer.

The plant of the Lime Products Co., at Whitecliffs, Arkansas, is now producing amorphous, colloidal, chalk calcium carbonate whiting. As this deposit is said to be the only one in the United States, the Whitecliffs chalk whiting is being used to replace imported material. Calvin Stitt is in charge of the company's sales department, with headquarters at 4821 Lake Park avenue, Chicago, Illinois.

Distributing organizations of the Dayton Rubber Manufacturing Co., Dayton, Ohio, in the Midwest and South, are the two divisions of the Wells Co., in Columbus, Ohio, and the Hanson-Duluth Co., Duluth, Minnesota; the Southern divisions being in Shreveport, Louisiana, and St. Petersburg, Florida.

The Seiberling Rubber Co., Barberton, Ohio, announces the following appointments in the Midwest: F. A. Carlson becomes Minneapolis branch manager; E. A. Rogers will take charge at Kansas City; March Fisher becomes branch manager at Detroit; and Howard Lowes at Cincinnati. All four men have for some time been connected with the Seiberling organization.

The Ault & Wiborg Co., Cincinnati, Ohio, manufacturer of chemicals and colors used by the rubber industry, is enlarging its Evanston plant by the construction of a five story factory building, the greater part of which will be utilized in the manufacture of the company's Pyroxylene products. L. A. Ault is president.

A plant expansion program involving an expenditure of more than $400,000 has been begun at Flint, Michigan, by E. I. du Pont de Nemours & Co., Inc., Wilmington, Delaware. The new construction, necessitated by the increased demand for Duco automobile finish, will include three main factory buildings and two smaller ones. It is expected that the work will be completed within six months and that the new facilities will double the capacity of the present plant.

About March 1, 1927, the Alliance Rubber Producing Co., 537 New York Life Building, Kansas City, Missouri, plans to begin the manufacture of mineral rubber, utilizing the residuum of crude petroleum, and marketing the product under the trade name of "Arpco." The organization later plans to equip the plant for the manufacture of reclaimed rubber. H. R. Ennis is president.

AMERICAN EXPORTS DURING OCTOBER OF GARTERS, ARMBANDS, AND suspenders reached a total value, according to the Department of Commerce, of $104,760. Fifty-four countries represented the purchasers of these commodities.

Pacific Coast

The tire factories on the Pacific Coast report a very satisfactory state of trade at the close of the year. There has been much less seasonal slowing up than heretofore, due in a large degree to the general drop in prices in which manufacturers followed the lead of the big tire makers of the East and Midwest. Buyers appear to be quite convinced that the bottom has been reached and many frankly admit that they are purchasing for speculation, confident that within a few months at most there will be a sharp upturn in prices. These factors have had a good effect on spring dating business, and production at most of the tire works fully equals the outturn of early summer. A favorable condition is also indicated by recent estimates of dealers' inventories in the Pacific Coast territory, the figures showing that tire stocks are fully 25 per cent less than they were a year ago.

Makers of and dealers in rubber supplies for the oil fields report a generally good demand, and they note with especial satisfaction a decided trend toward stabilization, better goods find steadier sale, there is practically no price cutting, and the day of hurried, last-minute orders is passing, oil operators being more disposed than heretofore to keep reserve stocks of mechanical rubber goods to meet emergencies.

Retailers of rubber footwear were caught short on a considerable volume of goods. Disregarding the advice of footwear representatives from the East and Midwest, they failed to stock up, and when the unusually heavy rains came their shelves were soon cleared, and frantic appeals to the representatives only brought the reply that it would take many weeks to fill shoe orders, little stock being carried.

Makers of and dealers in garden hose report advance sales as excellent. The champions of the ⅝-inch size have probably scored a greater victory in the Pacific Coast section than elsewhere in the country, for while the proportion of ⅝-inch hose sold but a few years ago in this section was scarcely 20 per cent of the total, now it is well over 60.

The American Rubber Manufacturing Co., Oakland, California, reports that 1926 was by far the best year in its history. Its products include heavy belting, fire and single jacket hose, hose racks, and general mechanicals. The company recently completed a new hose room, and it contemplates making another extension to double its capacity for weaving and braiding.

Among those who have been recently visiting the Pacific Coast have been President Harry T. Dunn of the Fisk Rubber Co., Chicopee Falls, Massachusetts; President C. C. Osmun of the Marathon Rubber Co., Akron, Ohio; Assistant General Sales Manager L. A. McQuain of The B. F. Goodrich Company, Akron, Ohio; President J. M. Alderfer, with General Sales Manager C. C. Prather, Advertising Manager J. N. Dunlevy, and Bus and Truck Tire Sales Manager R. E. Hedlund of the India Tire & Rubber Co., Akron, Ohio; and Assistant Sales Manager P. H. Goodall of the Mohawk Rubber Co., Akron, Ohio.

Harry Huntington, president of the Huntington Rubber Mills, Portland, Oregon, states that the mills have for several months been running 24 hours a day and that orders are still piling up. There has been a steadily increasing demand for goods in the East and Midwest, and a continual growth in sales on the Pacific Coast. In addition to rubber heels and soles and many mechanicals, the mills make tan soles and soling, "Everon" rubber buttons, and "Sure-Grip" jar wrenches. Eastern footwear factories are large buyers of several products.

The Chanslor & Lyon Tire & Rubber Co., which operates the former King plant in Oakland, California, is now producing a full line of balloon tires, compared with but one size a year ago.

The Pioneer Rubber Mills at Pittsburg, near San Francisco, which have been running three shifts a day on garden hose orders

and putting considerable overtime on fire and oil hose and general mechanicals, planned to shut down for a week after January 1 to take inventory and to make repairs and additions.

Frank L. Ryan, who has been in charge of the San Francisco branch of the India Tire & Rubber Co., has been appointed divisional sales manager of the entire territory west of the Rockies.

The Spreckels "Savage" Tire Co., San Diego, California, has disposed of all its fabric and rubber stock, but has kept its mechanical equipment intact. The latter with the buildings will be sold to the highest bidder by the executors of the estate of the late John D. Spreckels, the San Diego capitalist who owned practically the entire plant.

L. J. Cosgrove has been appointed by George B. Dodge, vice president of the American Rubber Manufacturing Co., San Francisco and Oakland, as manager of the fire hose department for Southern California, with headquarters at the company's new branch, 1855 Industrial street, Los Angeles, California.

The Overland Tire & Rubber Co., Omaha, Nebraska, has appointed the Wheeler Rubber Co. sole distributers of the Overland Trail line of tires on the Pacific Coast, with headquarters at 406 West Pico street, Los Angeles, California.

The Goodyear Textile Mills in Los Angeles, California, have extended their operations to take in a total of 300,000 square feet of floor space. They now employ 650 workers, and during 1926 used over 6,000 bales of cotton in producing in excess of 6,000,000 pounds of tire fabric for the sole use of the Goodyear Tire & Rubber Co. of the same city.

The Goodyear Tire & Rubber Co. of Los Angeles, California, had as a guest recently President Paul W. Litchfield of the parent Goodyear company of Akron. Mr. Litchfield came to make arrangements for a new addition to the California plant. This will be a 100 by 200-foot brick and reinforced concrete building, five stories high, and costing about $250,000. He stated that $300,000 more would be spent for additional equipment for the entire plant, which when installed will enable the factory to increase production about 1,000 tires daily above the recent average of 6,500 tires. The additions will also mean an increase in the present working force of 2,800 to about 3,100.

The Jack Tire & Rubber Co., Spokane, Washington, has quit operations and is disposing of its machinery and materials and will offer its factory for sale, according to President John B. White. The latter states that the company will not, however, go out of business, but that as soon as its assets are converted into cash it will engage in mining, for which line it has obtained a new charter under the title of the Jack Company.

Firestone representatives on the Pacific Coast report sales for 1926 far ahead of any previous year with most encouraging prospects for 1927. Gains made during the past three months include equipping of several of the largest motor transportation lines in Oregon, Washington, and California.

The Hewitt Rubber Company of Colorado, 1238 Broadway, Denver, Colorado, distributer of Hewitt tires and tubes, reports that its sales last August practically equalled those of the entire year 1925, while November sales were double those of the month previous. George J. Bonness is general manager of the distributing organization.

During the latter part of November Earl Udick, proprietor of the Udick Tire Co., Colorado Springs, Colorado, and a distributer of India tires, spent several days visiting the factory of the India Tire & Rubber Co., Akron, Ohio.

The Columbia Tire Corporation, Portland, Oregon, reports that 1926 business was greatly in excess of the year before, and that it has orders booked ahead that will keep the plant busy at full capacity until the middle of spring. The company recently exhibited a 32 by 4 cord tire for which a mileage of 41,800 is recorded.

M. L. Henderson, who has been a Goodyear representative for over thirteen years, has been appointed Spokane branch manager for the California Goodyear company.

A. E. McManus will henceforth have entire charge of the Coast territory for Lock-Tite Patch Co., Detroit, Michigan, with headquarters in Los Angeles.

Judge G. A. Waddle, of the legal department of the Goodyear Tire & Rubber Co., Akron, Ohio, was a recent visitor at the Goodyear plant in Los Angeles.

J. B. Brady, coast manager, and H. A. Farr, head of tire sales, of the United States Rubber Co., San Francisco, were recent guests of J. B. Magee, branch manager, Los Angeles, California.

Activities of Dayton Rubber Manufacturing Co.

Combination distributing and warehouse branches have been recently opened on the Pacific Coast by The Dayton Rubber Manufacturing Co., Dayton, Ohio, the new divisions being the Cassidy-Dayton Tire Co., Portland, Oregon, and the Eddie Sheehan Tire Store, Seattle, Washington, while both branches also maintain offices in Spokane. The Dayton distributing agencies in California are the Weinstock-Nichols Co., of Oakland and San Francisco, and the Maryland Auto Supply Co. of San Diego.

Canada.

It is rumored in the Toronto district that automobile and truck tires will be placed on the consignment basis. A number of large manufacturers interviewed in Toronto state that they will not adopt such a policy, their argument against it being that tires are booked and delivered now, or between now and the spring of 1927, and that dealers secure May dating on all their purchases, and that a consignment arrangement is not reasonable. The dealer is also protected in case of any decline in prices. With low prices prevailing, and with lower prices anticipated, manufacturers will no doubt be more keen to secure additional business than during the period of high tire prices, and the consignment plan will be one of the methods that will be used.

The anticipated new prices on automobile and truck tires and tubes came into effect last month with a decline of from 5 to 18 per cent on tire and tube prices. It is expected that new prices on mechanical rubber goods will be announced shortly, and in line with reductions on all rubber commodities.

There is nothing new about rubber footwear, and the trade is waiting for a change in the weather. There was a drop of 10 per cent in a few of the cheaper grades of rubbers a short time ago, but not on the higher grades. There is a fair demand for larrigans and lumbermen's rubbers, but not so great as later on if there should be plenty of snow and slush.

The assets of the Oak Tire & Rubber Co., Ltd., Oakville, Ontario, are being advertised by tender by N. L. Martin, trustee. The first meeting of the creditors and shareholders of this firm took place recently.

A mutual benefit association has been formed by the employes of the Dominion Rubber Co., Ltd., Kitchener, Ontario. The provisional directors are: W. A. Eden, G. W. Charles, J. A. Martin, C. W. Cressman and R. Y. Copland.

Arthur Brittain Sales Co., Ltd., Montreal, representing in Canada The Gates Rubber Co., Denver, Colorado, manufacturer of fan belts, radiator hose, air hose, etc., has opened a branch office in Toronto under the management of Norman A. Weir.

Colonial Traders, Ltd., Chatham, Ontario, has been appointed general sales representative for Victor electric-steam tube vulcanizers manufactured by the Newsom Automatic Controller Co., St. Louis, Missouri.

Work is progressing rapidly on the preparations for the coming Motor Show which will be held from January 22 to 29 in the Morgan Building, Montreal, under the auspices of the Montreal Automobile Trade Association, Ltd. The exhibits will occupy three floors with a total floor space of 105,000 square feet.

Goodrich Zippers are being featured on bill boards in choice locations in Montreal and other leading Canadian cities.

Recent Quebec incorporations include: Puncture & Blow Out Proof Tire & Tube Co., Montreal, and Voorhees Rubber Manufacturing Co., of Canada, Ltd., also of Montreal.

Jack Porteous, Art Fletcher, and Arnold Roche, prominent Westward lacrosse players, and all-round athletes, will take part in the Dominion Rubber Co. House Hockey League this year. All three of these boys figure prominently on the head-office team, Porteous taking the double role of playing manager. It is expected that the west-side athletes will be a great help to the head-office squad when the campaign gets under way.

The Goodyear Tire Repair School was recently reopened at the factory in New Toronto. The course is of two weeks' duration for men without extensive experience in tire repairing. For experienced men a two or three-day course is usually sufficient.

Gordon E. Wight of the Dominion Rubber Co., Ltd., Regina, Saskatchewan, has been elected Honorary Secretary of the Regina Branch of the Canadian Manufacturers' Association.

The Quebec Rubber Co., Ltd., with headquarters in the city of Quebec, has opened a branch in Montreal at 71 St. Antoine street. The manager is C. C. Laporte, who is widely known in Montreal and throughout the Province of Quebec.

James Tricky has joined the selling staff of the Canadian Goodrich Co., Ltd., Montreal, and will cover the eastern section of Montreal. Mr. Tricky is well and favorably known to the trade.

A petition for authorization to sell the assets of the Lee Puncture Proof Tire Co. of Canada, Ltd., Montreal, has been granted to G. W. Scott.

J. W. Green, credit manager of the Dominion Rubber Co., Ltd., is of the opinion that there are three important basic questions with regard to individual credits: (1) Is he honest? (2) Has he business ability? (3) Has he sufficient resources?

W. B. Hamilton Shoe Co., Ltd., Toronto, distributers for the Raynboot, report that this line of overshoe has been favorably received by many leading retailers throughout the Dominion.

Officials of The Goodyear Tire & Rubber Co., Akron, Ohio, report that sales for 1926 at their Canadian plant will be the largest in that division's history, totaling about $26,000,000.

The Eastern Rubber Co., Ltd., Farnham, Quebec, has filed papers in bankruptcy and an interim receiver has been appointed.

Dunlop Service Emblems

At the recent Dunlop Night held by the Dunlop Tire & Rubber Goods Co., Ltd., Toronto, Ontario, John Westren, vice president and general manager, greeted his guests in a happy address of welcome as a preliminary to the distribution of service emblems to those who have this year completed ten years' service with the company. These awards are made on a Dunlop Night from year to year, the oldest employe now approaching his thirty-fifth year of continuous service. The emblem for the first ten years is a gold ring, with an inset diamond, to the women, and a gold button for the men. These presentations were made by Mr. Westren to eighty-five members of the staff.

CANADA'S EXPORTS OF RUBBER BOOTS AND SHOES TOTALED FOR THE first nine months of 1926 1,142,019 pairs, value $1,907,849, or a gain in value of 42.9 per cent over the corresponding period of 1925. The figures for canvas rubber-soled shoes indicate, according to *Commerce Reports*, an even greater advance of 83.1 per cent; 3,946,771 pairs, value $3,062,120.

The Obituary Record

Tire Rim Inventor and Designer

On December 14 P. B. Bosworth, for a number of years associated with the rubber industry as an inventor, died suddenly in his office at the factory of The Miller Rubber Co., Akron, Ohio. He was sixty-six years of age.

Beginning his business career as an engineer and designer, Mr. Bosworth was at first connected with the Goodyear and Goodrich organizations, while in 1912 he joined the staff of the Firestone company. It was while he was working with the latter organization that he produced his invention which has made his name famous in the tire and automobile industries, while the Bosworth rim for automobile tires has been the cause of many suits between rubber companies. It has, however, survived a half dozen or more patented rims, and is still considered the most efficient type available.

Mr. Bosworth retained the foreign rights on his rim, and for a short time maintained a company in London, England, for its manufacture. Returning to America, he became connected as a designer with the Victor Rubber Co., Springfield, Ohio, while two years ago he became connected with the Miller organization. He is survived by his widow, a son and a daughter.

Manufacturer of Reclaim and Machinery

The death was announced on November 22 of James E. Norton of M. Norton & Co., Medford, Massachusetts, dealer in mill machinery, and cured and uncured scrap rubber. As a boy Mr. Norton had begun work with his father in his rubber reclaiming plant in Medford, although he was also greatly interested in metallurgy and mining, and in the pursuit of these studies had traveled extensively in Europe, South America, the United States, and Canada. Of late years he had confined his efforts to rubber reclamation and rubber machinery. He is survived by his widow, two brothers and two sisters.

Formerly Chief Engineer of P. E. & M. Co.

George Simpson, formerly chief engineer of the Poole Engineering & Machine Co., Baltimore, Maryland, died on December 18, age 79 years. He was born in Smithfield, Virginia, and at an early age went to Baltimore to work for his uncle the late Robert Poole founder of Poole & Hunt, now the Poole Engineering & Machine Co.

His marked mechanical ability soon became apparent and in a few years he became the chief engineer which position he occupied until 1896 when he resigned to become supervising engineer for the Farrel Foundry & Machine Co., Ansonia, Connecticut. After five years service in this capacity he resigned again to become associated with the Poole company as their consulting engineer. About two years ago it was necessary for him to retire from active duties due to declining health.

He is survived by one brother, Robert Poole Simpson, former president of Poole Engineering & Machine Co., but now vice president of the Baltimore Trust Co., and two sisters, Ann and Margaret Simpson, all of Baltimore, Maryland.

DURING OCTOBER GERMANY OUTSTRIPPED THE UNITED KINGDOM as a purchaser of American pneumatic casings, taking 11,409 tires, value $165,966; Cuba's share being 12,242, value $140,646. The United Kingdom, taking 7,707 tires, value $128,050, was followed by Argentina, with 8,882, value $125,786. The countries mentioned also bought largely of inner tubes, while the highest value for solid tires was recorded by Australia, 615 tires, value $33,589. Other good markets for solids were: the United Kingdom, 1,026, value $27,584; Argentina, 882, value $24,147; and Cuba, 497, value $16,475.

The Rubber Industry in Europe

Great Britain

ALL branches of English trade and industry were greatly relieved by the general resumption of work on December 2 in the South Wales coal district, and the beginning of coal exportation without license. Although there are still some unfavorable conditions to be faced, it is felt that the future is brighter for many lines of industry, and particularly for the engineering, steel, and metal trades. British automobile manufacturers believe that the year 1927 will prove to be the best in their history, while producers of rubber goods are making strenuous efforts to increase their business in foreign markets.

American Rubber Purchasing Organization

The British rubber industry, in all its branches, has shown great interest in the proposed rubber purchasing company now in process of formation in the United States, and representing the leading tire and automobile manufacturers of that country. The news of the establishment of this $40,000,000 organization aroused some discussion in Great Britain as to the advisability of offsetting the measure by the establishment of a producers' or sellers' combine, but it was learned that the American group was not so much opposing the restriction legislation as endeavoring to secure fair prices for the rubber producer without endangering the position of the American consumer. In an editorial entitled, "To Stablize Rubber," *The India-Rubber Journal* says in part:

> At first sight the American rubber purchasing plan appears to be one that should be welcomed in the interests of both sides of the industry. The prevention of a runaway market in either direction will presumably be the first object of the scheme, and, if wisely administered, there is no reason why it should not dovetail very well into the provisions and workings of the Stevenson Act as now amended. It is obvious, of course, that the scheme introduces an important new element into the market and gives the Americans a negotiating capacity and *locus standi* which they have not held before, with a consequent power of making agreements and arriving at decisions in common. While this influence will no doubt be used to prevent prices rising above a certain point, it is also likely that it will be exerted to maintain them at a figure which will prevent an artificial shortage.

Institution of the Rubber Industry

On December 1 the fifth annual meeting of the Institution of the Rubber Industry was held in London at the assembly rooms of the Institution of Mechanical Engineers. Sir Stanley Bois, the retiring president, commented upon the successful activities of the various local sections, particularly instancing Manchester and Birmingham. He further noted that a Scottish section had not yet been formed, alluding also to the organization's need of adequate headquarters. Sir Stanley thoroughly believes that co-operation will do much toward extending the interests of the British industry.

Lord Colwyn, the new president, then in a few words reviewed the growth of the Institution, stating that during 1926 1,049 new members had been elected, as compared with 116 for the previous year. He observed that the development of the British rubber industry could be assured if its members showed sufficient courage, pertinacity, shrewdness and disposition to work, referring also to the fine organizations being maintained in the United States, Germany, France, Italy, and Japan. The new president concluded by presenting a number of diploma certificates.

Papers to be read during the January meetings of the various sections include the following: London, January 10, "Aging of Raw and Vulcanized Rubber," by G. Martin; Sales Section, London, January 17, "Retail Selling," by H. G. Selfridge, Jr.; Manchester, January 13, "Rubber Solvents," by Dr. D. F. Twiss; and Birmingham, January 6, "Physical Tests and Their Significance," by A. W. T. Hyde.

British Notes

Press reports state that the Macintosh Cable Co. of Derby will be absorbed in the national organization to be known as the Dunlop Rubber Combine. About £100,000 will be spent in improving the cable company's plant, while 1,000 additional men will be employed, the number later to be considerably increased.

The Dunlop Rubber Co., Ltd., is transferring its main offices in London to the St. James' House on Ryder street, the new premises comprising the six top floors.

Under the name of Pará Plantations, a new British company is in process of formation, its purpose being the cultivation of rubber along two of the southern tributaries of the Lower Amazon, in Brazil, the Tapajos and Xingu rivers. Sir Ernest Birch heads the new company, which will acquire the whole of the capital of the Companhia Paraense de Plantacoes de Borracha, representing rubber concessions having a total area of 415,680 acres. It is understood that the new issue was oversubscribed soon after it was offered to the British public.

One of the leading Australian rubber organizations, the Perdriau Rubber Co., Ltd., Sydney, New South Wales, reports a most successful business year for the period ended June 30, 1926. The concern's net profits amounted to £137,431, or £37,260 in excess of the previous year, and over 100 per cent greater than the net gain for 1923-4. The company is planning the extension of its plant, which may be doubled in size.

More than a dozen of the leading rubber companies of Great Britain participated during the first week of November in a comprehensive display arranged by the Rubber Growers' Association at the Brewers' Exhibition in the Royal Agricultural Hall, London. Many lines of rubber goods were included in the display, especially rubber flooring and paneling, rubber cushions and upholstering, mats, table tops, etc. Rubber goods were also in evidence at the Ironmongery Exhibition, held in November at the Royal Agricultural Hall, Islington, while a most attractive display, representing rubber accessories for the modern home, was staged at the Universal Cookery & Food Exhibition, Olympia.

The Rubber Growers' Association has still further shown its initiative in planning its stand for the Paris International Rubber Exhibition where over 6,000 square feet will be occupied by the Association's main exhibit, the "Rubber House." Here will be installed rubber flooring and tiling suitable for each room, rubberized curtains and blinds, rubber-lined sinks and table-tops, rubber upholstery, as well as many other practical devices for making housekeeping easier. On display are also a full line of rubberized fabrics in delicate colorings, rubber clothing and footwear, etc., as well as a variety of metalized rubber articles.

Some of the producing companies have been declaring large interim dividends recently, especially the Ceylon (Pará) Rubber Co., Ltd., and the Sunnygama Co., Ltd. Last year these two organizations distributed dividends amounting to 70 and 80 per cent respectively. The dividends of the Kuala Lumpur Rubber Co., Ltd., have totaled 50 per cent net for the year 1926, and the Kuala Muda Rubber Estates, Ltd., 30 per cent.

Exports of rubber manufactures from the United Kingdom during 1925 reached a total value of £9,037,206, as compared with £7,491,708 for 1924. The greatest increases were recorded in ship-

ments of automobile casings and inner tubes, which represented advances over 1924 of 65 and 60 per cent respectively.

Germany

Both imports and exports of rubber goods showed a slight increase during the period January-September, 1926, as compared with January-September 1925, the totals being: exports, 126,867 quintals, value 76,761,000 marks, against 119,471 quintals, value 69,419,000 marks the year before; imports, 22,083 quintals, value 12,312,000 marks, and 16,001 quintals, value 9,764,000 for the 1926 and 1925 periods respectively.

Among the more important items of export were found: automobile tires, 176,781 instead of 132,991; bicycle tires, 754,721 against 1,009,110; vehicle tires, 19,538 against 3,850; tubes for automobile tires, 163,623 instead of 174,949, bicycle tire tubes, 2,149,921 against 2,232,964; footwear 2,096 quintals against 3,050 quintals; hose, 11,706 quintals against 12,312 quintals; belting 2,468 quintals instead of 2,377 quintals; packing, 1,994 quintals instead of 2,258 quintals; articles of rubber and fabric, 10,810 quintals against 10,384 quintals.

The imported rubber goods included: tubes, all kinds, 127,122 against 14,507; tires, all kinds, 172,393 against 25,180, footwear, 449 quintals against 246 quintals; belting, 316 quintals against 202 quintals.

Imports of crude rubber fell to almost half the amount of the corresponding 1925 figure, the totals for the 1926 and 1925 periods being 164,460 quintals and 308,903 quintals respectively; balata arrivals also decreased from 4,721 to 2,755 quintals; the same is true for waste which dropped from 81,325 quintals to 24,484 quintals.

German Automobile Exposition

The German tire industry was well represented at the Automobile Exposition recently held at Berlin. A large number of well-known firms exhibited their specialties and latest improvements in tastefully arranged stands.

While low-pressure tires for heavy cars and trucks have been known for some time in America now, no German firm had ventured in this direction until the firm of B. Polack, Waltershausen, recently took up this line of manufacture and their low pressure tires for trucks may be considered the principal novelty shown at the exhibition in the tire branch.

The Continental Caoutchouc & Gutta Percha Compagnie, Hannover, had on view a pneumatic tire for electric trucks, which is new here. Similar tires were also shown for the first time by the Peters Union A.-G. This firm attracted attention by displaying in the center of its handsome stand an immense shell in which lay a Peters Union Red Seal cord tire, the "Pearl of the German Tire Industry."

Gummiwerke Fulda again exhibited its parabola tires, or uniform pressure tires, as they are also called. Scientific tests have demonstrated, it is claimed, that this is the most elastic tire on the world market. The characteristics of this tire, for which a mileage of at least 18,000 is guaranted, are: steel band which gradually gets thicker toward the sides; the union of the hard rubber layer is effected by means of grooves; the sidewalls of the tire are not concave but convex; the center of the surface is grooved, and in the center of the tire is the air chamber.

Besides the above firms, the following also were represented: Harburger-Gummiwarenfabrik-Phoenix A.-G., Deutsche Dunlop A.-G., Metzeler A.-G., Deka Pneumatik, Hannoversche Gummiwerke Excelsior, Berlin-Rixdorfer Gummiwarenfabrik, Vorwerk & Sohn, etc.

Regarding the trend of manufacture as illustrated at the exhibition, it may be noted that the low-pressure tire has become pretty general, about 90 per cent of the passenger cars here being equipped with this special type. There is also a growing tendency to use straightside tires. Solid tires have practically disappeared and are now only seen on special types of trucks, moving vans, etc. No truck in Germany below 3 tons now uses any other type of tire than the pneumatic; of 15 trucks of 3 to 5 tons, 7 used pneumatic and 8 elastic tires.

German Trade Notes

Dr. Ernst A. Hauser, Frankfurt-am-Main, well known through his work with latex, has been nominated Fellow of the Institution of the Rubber Industry, Faraday House, London, W. C. It appears that he is the first non-English-speaking foreigner to be so honored.

A novelty shown at the automobile exposition was a rubber cover for steering-wheels. The cover was of black rubber with a design on the surface like that of a tire tread and on the under side it has in addition the usual grooves to prevent the fingers from slipping. The covers come in four sizes.

The Ekona A.-G. (formerly Deutsche Kautschuk A.-G), Berlin and Cameroon, has bought in London the plantation formerly belonging to the Meanja Rubber Co., and located in the Cameroons, West Africa. The development of the Hevea trees has been satisfactory and loss through pests and diseases has been limited. The Hevea crop of 19,249 kilos brought 4.03 marks per kilo. The harvest of Kickxia rubber was 7,381 kilos, the average price per kilo obtained was 6.18 marks.

The work of equipping the factories and providing motive power is proceeding satisfactorily. Labor was adequate, the average number of native workers employed being 1,365. The European staff consisted of 11 persons.

The Gummiwarenfabrik Saul, Aachen, Germany, has just celebrated the 60th year of its existence. The concern was founded in 1866 by Sam Saul and later continued by his sons. Its chief products are mineralized soft rubber toys and sporting goods. The founder of the firm, now ninety years old, is still mentally alert and is one of the few living pioneers of the German rubber industry.

The discussion between German and foreign tire manufacturers regarding price cutting has closed because it was found impossible to agree. However, Michelin, Dunlop and others have agreed to sell to no outside middlemen in Germany; that discounts to dealers shall not exceed 10 per cent plus 3 per cent off for cash; that bonuses will be granted at the end of the business year only. The obstacle that broke down the negotiations was the German kilometer guarantee, which American producers declined to give. Meanwhile, representatives of Michelin, Continental, Dunlop and an American concern, are to study the matter further.

EUROPEAN NOTES

Of the belting employed in France, 75 per cent is leather, 15 per cent balata and 10 per cent woven hair, rubber, etc. Most of the balata belting comes from England. It is thought that there is a good future for rubber belting.

Hungary imported 107,100 kilos of automobile tires, value $177,883, during the first six months of 1926. Most of these tires came from France which supplied 53,100 kilos; Germany sent 18,000 kilos, Italy 15,800 kilos, Austria 10,400 kilos and United States 7,500, while other countries supplied the balance of 2,300 kilos.

Norway used about 47,000 automobile and motorcycle tires during 1925. Of this amount 3,500 were motorcycle casings and 1,200 sol'd tires. Inner tube sales are estimated at 50,000. New equipment is not included in these figures. Sales were particularly good during the year and if they kept up at the same rate during 1926, they should have increased to 50,000-53,000 tires of all kinds.

The Rubber Industry in the Far East

Ceylon

FROM an announcement by the Colombo Secretariat it is learned that the Secretary of State for the Colonies has proposed that export coupons issued on and after February 1, 1927, should become invalid on the expiration of the quarter following the month for which they have been issued, but that the validity of coupons issued prior to February 1, 1927, should not be interfered with. The proposal will be taken up by the local council at its next session. This news has called forth more or less acrid discussion for on the whole, Ceylon is not at all pleased with the suggestion.

In the first place, looking to Malaya as usual, it is considered that Ceylon is at a disadvantage as compared with her neighbor, for in Ceylon coupons are issued monthly whereas in Malaya they are issued quarterly. Coupons issued in Ceylon on Feburary 1 for that month would become invalid after four months, that is on June 1, whereas it is understood that coupons issued on February 1 in Malaya for the quarter ending April 30, will remain valid until August 1, that is for six months.

The handicap on Ceylon would be particularly felt in connection with coupons for February and March which are Ceylon's wintering months when comparatively little tapping is done. For this reason, Ceylon producers feel that coupons issued for the first two months of any quarter should remain valid for six and five months respectively, otherwise estates not over assessed would have to over tap heavily during the next three months if they wished to use all their February and March coupons.

The situation can better be appreciated when it is known that the greater part of the annual crop is usually obtained during the four months October-January, inclusive, whereas ordinarily only three per cent is obtained in February and about the same in March, while the coupons are issued each month for one-twelfth of the year's standard production.

So long as there was no limit to the validity of coupons, estates could pile up a reserve during the more productive months, October-January, which could be carried over into the new restriction year to make up their quotas during the lean months February-April. But if the new proposal should be carried out, producers, many of whom already are in arrears owing to the excessively wet weather during June-August last, will find it particularly difficult to collect the reserves necessary to make full use of their coupons later on. Apart from these considerations the proposal seems to many to be futile, fumbling with the coupon problem.

According to one well-known rubber man, nothing short of immediate cancellation of all outstanding coupons, complete revision of assessments and the issuance of export licenses for existing stocks would properly clear up the present situation.

Finally it is interesting to note that the unused coupons in Ceylon now represent about 20,000 tons. The Rubber Controller considers that it is quite improbable that even half of these coupons, some of which date back three or four years, will ever be used.

The Reassessment Question

It is remarkable that although restriction is now in its fifth year, the question of assessments in Ceylon still offers so many grounds for complaint. The outsider would have thought that this matter, the basis of restriction, would have been settled satisfactorily some time ago. Many local planters are so dissatisfied that a motion for the abolition of restriction has recently been put before the Government.

It is known that there are many estates which could easily produce a good deal more than they are assessed at, while other estates, particularly small holdings, find it impossible to fill their quotas, which is held to be the real reason why Ceylon is able to produce only about 85 per cent of her standard. To remedy this it has been suggested that the transfer of coupons should again be legalized. An added advantage of such action, it is claimed, would be the stabilizing effect it would have on the market, for then Ceylon and also Malaya would be able to come up to permissible exports and the uncertain factor provided by a non-existent standard output and a fluctuating actual output would be eliminated.

Renewed Interest in Bud Grafting

In the matter of bud grafting, both Malaya and Ceylon lag sadly behind the neighboring Dutch Colonies, but Ceylon at least appears to have been fully aroused by what the Dutch have done as related by Roy Bertrand in an address at Kandy after a trip he and C. E. A. Dias had just made to Java and Sumatra.

Mr. Bertrand emphasized the importance of bud grafting in view of the serious competition that might be expected in the near future from the native producers. In view of repeated statements about the tendency of the natives to kill their trees by over tapping it is well to note that Mr. Bertrand considers such talk nonsense. In spite of high prices in 1925, there seems to be much more rubber in bearing on native holdings than can be tapped.

Turning to his main topic, the speaker stated that the Dutch Department of Agriculture some years ago had 13,500 selected mother trees under observation, and now the numbers had increased to such an extent that it was impossible to keep records. In his concluding remarks, he warned against the inclination to let the Dutch go on and then appropriate the results, as this might prove disastrous, for the material that the Dutch had produced and which was suited to local environments might upon being imported into Ceylon be found to be disposed to diseases here from which they were free in the Dutch Colonies. Finally, he declared that no attempts would prove successful without the aid of the Government which would have to give producers a certain amount of land to test their mother trees.

F. A. Stockdale, Director of Agriculture, in proposing a vote of thanks, touched on the work done in Ceylon in connection with bud grafting, and when compared with the work of the Dutch it certainly is not much. At present the Rubber Research Scheme has 120 mother trees under observation, 12 of which are really good, some yielding 40 to 60 pounds per annum. Mr. Stockdale kindly offered to give short courses in budding rubber and also promised to take up the matter of enlarging the Rubber Research Scheme so that Ceylon could secure a large number of proved mother trees and areas of budded rubber.

Mr. Bertrand's Lecture

One of the first results of Mr. Bertrand's lecture on budded rubber has been the publication in the local papers of detailed instructions for bud grafting issued by the Department of Agriculture.

Next the Estate Products Committee advocated the establishment of an Experiment Station of about 200 acres for testing mother trees besides the establishment of isolated seed gardens to provide selected seed from high yielders. For these purposes it requests the Government to grant land and to place at the disposal of the Rubber Research Scheme at least one-half of the accumulated funds at present standing to the credit of the Rubber Research Fund. Finally it asks the Research Scheme to secure the services of a geneticist as soon as possible and recommends that the Govern-

ment consider a further increase of its grant to the scheme for the maintenance and development of the work.

Apparently what Mr. Bertrand had to say, coupled with a remark made previously in a report for the press that while the British produced 75 per cent of rubber in 1921, it produced only about 53 per cent in 1924 and was rapidly losing ground, made a deep impression on his hearers.

It now remains to be seen what the Government is prepared to do.

Netherlands East Indies

The plans under way now for establishing an industry for remilling native rubber in Sumatra are being followed with great interest by those in any way connected with the rubber industry, and as is natural under the circumstances opinions for and against are frequently aired in Dutch papers both in Holland and in the East. Some important rubber men already expressed dubious views, warning that an industry run entirely on European lines and in which overmuch emphasis was laid on the factory would find it a hard task to compete with the Chinese.

A recent issue of the well-known Dutch daily, the *Handelsblad*, contains an interesting article, which presents the same conclusion but attacks the matter from an entirely different angle. The writer of this article chiefly stresses the difference in the point of view and nature of the Oriental and the European.

Discussing first the methods employed up to the present, he points out that the most important figure in the industry now is Tan Kah Kee of Singapore, who started remilling native rubber more than ten years ago. He owns an extensive purchasing organization with branches in most of the native rubber producing centers. According to the writer, who it should be added has lived in the East for many years and is thoroughly familiar with the trade in native rubber, the first requisite of a Chinese rubber buyer is money, for he must be able to give the native seller a certain sum in advance which is deducted when the rubber is delivered. When the deal has to be closed the time for elaborate negotiations has arrived and the battle of wits and endurance between the subtle Chinese and cunning Malay is on. But the Chinese knows his man; he puts him under obligations, calls him friend, offers him hospitality which, since both parties have plenty of time, may be extended for a few days. After having been a guest in the house of the buyer for a few days the Malay begins to feel at home with his host, becomes more pliable and finally the transaction is concluded, generally to the advantage of the Chinese. For, in the meantime, the rubber which the Malay brought with him in a wet condition, has lost a good deal of weight by drying, and when the rubber has been bought, the seller frequently takes a great part of the price obtained in necessities which the businesslike Chinese has on hand.

Now, asks the writer, could a European do all that the Chinese does? And of course the answer is he would not even try. Finally, he concludes, the Chinese get great support from the Americans, who do not care who sells the rubber, provided they can use it and the price is right. It is difficult to prophesy, but it should be taken into account that a European enterprise run entirely on European lines requires at least a year to get its factories working, and then another half year to get its product regularly handled in the market, and only then can it begin competing with the established Chinese pioneer.

The paper publishing this reminds its readers that the investigators for the Rubber Union at the time decided that there would be no difficulties in obtaining rubber, while on the other hand the Dutch concern would have the advantage over the Chinese because they saved the cost of freight and transportation to Singapore.

The above article naturally called forth criticism from those entertaining the opposite point of view. One writer said that the preceding opinion was valueless as the methods described hardly were in use in the chief rubber centers all (Djambi and Palembang) because, owing to their prosperity the natives of these parts have taken the business in hand themselves and most of the rubber is now shipped direct to Singapore without intervention of Chinese. In addition the natives are now kept posted, by cable, on the daily Singapore quotations for wet rubber, and there is no need for extensive haggling over prices as the native knows what he should get for his product, while the form of barter described in the first article exists only in some of the outlying districts.

As for the support that Chinese receive from the big American interests, all other things being equal, there is no reason why Americans should not be just as ready to deal with Europeans as with Chinese. That there would be difficulties in buying raw material in some districts is recognized, but these difficulties are not insurmountable.

In view of the initiative and commercial sense displayed by the native producers in their increasingly successful attempts at eliminating the Chinese as a middleman as testified to in the second article and corroborated by recent articles on the subject in the Netherlands East Indies press, it may well be asked why these native producers, upon the imperfection of whose product an entire industry has been built in Singapore which it is sought to rival in Sumatra, should not one day decide that it would be still more to their advantage if they diverted to their own pockets the huge sums which others gained by improving their defective rubber by the very simple procedure of preparing a product without the faults which were such a source of profit to others? Why should not most if not all natives do what, in fact, some are doing already, namely, send a carefully prepared product direct to the European, and perhaps American, markets?

Alum As a Coagulant

In the *Indische Mercuur*, W. Spoon discusses the significance of alum as coagulant in the native rubber industry in the Dutch East Indies. The native prefers alum because it is easy to use and somewhat cheaper than acetic acid. Alum has the advantage of coagulating the latex rapidly and completely and no special care is required in its use. While the use of alum as a coagulant for rubber prepared on the European style has the serious defect of greatly retarding the rate of cure, this is not found to be the case in native rubber which, as is known, is shipped in a wet state. It seems that in this condition, the ripening process which takes place while the rubber is in transportation, creates certain substances which later on, during vulcanization, have an accelerating action. In this way, the retarding action of the alum is neutralized so that in the end native rubbers prepared with this coagulant have a rate of cure which is about equal to that of ordinary estate rubber coagulated with formic or acetic acid.

Mr. Spoon did not find that alum had a harmful effect on the quality of rubber and considering the method of preparation and subsequent treatment of native rubber, he held that it was in fact rather a good thing that natives did prefer alum.

Netherlands Notes

From Palembang comes the information that native dealers in Djambi formed some companies a little while ago to buy up native rubber and to deal directly with Singapore, where agents have been appointed. The concerns have worked successfully and have now purchased two steamboats which will be used exclusively for transporting rubber to Singapore and to import merchandise into Djambi on the return trip. It is the intention of the native dealers to eliminate Chinese dealers altogether in this way.

A number of applications for permits for remilling rubber in Dutch Borneo and in Sumatra have again been received by the authorities. These requests are from factories already in existence in Borneo, one with an annual capacity of 2,000 tons, one of 540 tons and the third 768 tons of dry rubber. The owners of the first are Chinese, of the second Malay and of the third, Japanese.

Rubber Patents, Trade Marks and Designs

United States

November 16, 1926*

1,606,797 Shoe tongue. William Alexander Julian, Cincinnati, Ohio, assignor to Ground Gripper Shoe Co., Inc., New York, N. Y.
1,606,841 Bandage and tourniquet. Dennis L. Newton, Fort Madison, Iowa.
1,606,885 Tire bead. Charles Edgar Maynard, Northampton, assignor to The Fisk Rubber Co., Chicopee Falls, both in Massachusetts.
1,606,966 Motor parts mounting. George Thomas Smith-Clarke, Kenilworth, England.
1,607,194 Dilater. Lester C. Gammon and Doctor D. Barnes, Sandpoint, Idaho.
1,607,207 Surgical pad. Isaac M. Pease, assignor to The Ohio Truss Co., both of Cincinnati, Ohio.
1,607,219 Powder puff having rubber wall. Franz Vincent, Bridgeport, Connecticut.
1,607,353 Hose coupling. James F. Key, Sierra Madre, and Eugene Holy, Los Angeles, California, assignors to First Trust & Savings Bank of Pasadena, California.
1,607,356 Airbag. William W. McMahan, Morrisville, Pennsylvania, assignor to Aiax Rubber Co., Inc., New York, N. Y.
1,607,450 Shoe attachment. Samuel F. Eubank, Columbia, Kentucky.

November 23, 1926*

1,607,626 Latex shipping bale. Ernest Hopkinson, assignor to General Rubber Co., both of New York, N. Y.
1,607,810 Woman's garment supporter. Dagmar Behnke, Oak Grove, Oregon.
1,607,859 Hollow resilient tire. John Agrillo and Joseph Daly, San Jose, California.
1,607,867 Combined heel and arch support. Frank H. Chase, Philadelphia, Pennsylvania; Philip R. Chase, executor of said Frank H. Chase, deceased.
1,607,997 Float ball valve. Laurence M. Oakley, Trenton, New Jersey.
1,608,032 Leg and foot lifting appliance for cripples. John A. McNabb, Somerville, Tennessee.
1,608,077 Antiskid tire. Heinrich Wieser, Jr., Munich, Germany.
1,608,096 Garter. Myrelle Friedman, New York, N. Y.
1,608,206 Rubber roll. Abraham L. Freedlander, assignor to The Dayton Rubber Manufacturing Co., both of Dayton, Ohio.
1,608,234 Tire blowout patch. Robert F. Reeve, Newark, New Jersey.
1,608,243 Fabricated cork sheet. Arnold L. Schavoir, Stamford, Connecticut, assignor by mesne assignments to New Process Cork Co., Inc., Brooklyn, New York.
1,608,282 Rubber covered manikin. Phebe Rae Whitney, New York, N. Y.

November 30, 1926*

1,608,541 Rubber stamp base. Maurice L. Willard, assignor to The Superior Type Co., both of Chicago, Illinois.
1,608,703 Tire. Harry Linwood, San Francisco, California.
1,608,806 Surgical appliance. Peter W. Nelson, Chicago, Illinois.
1,609,020 Loud speaker panel. Richard T. Griffiths, assignor to The Miller Rubber Co., both of Akron, Ohio.
1,609,112 Tank valve. John R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

December 7, 1926*

1,609,362 Toy. Frederick Jones, assignor to The Miller Rubber Co., both of Akron, Ohio.
1,609,501 Casing shoe. Robert R. Theiss, Houston, Texas.
1,609,521 Combined air scoop and damper valve attachment for airship envelope. Earl W. Leatherman, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.
1,609,769 Sanitary protector. Julia Perlzweig, Yonkers, New York.
1,610,088 Amplifying horn. Marion M. Harrison, assignor to The Miller Rubber Co., both of Akron, Ohio.
1,610,089 Wound bandage and cover. Steven Heitler, New York, N. Y.
1,610,106 Respirator mask. Harry S. Olgard, Kohler, Wisconsin.
1,610,154 Inflatable figure toy. Ralph E. Riley and Roy B. Weimer, assignors to The Miller Rubber Co., all of Akron, Ohio.
1,610,155 Inflatable figure toy. Ralph E. Riley and Roy B. Weimer, assignors to The Miller Rubber Co., all of Akron, Ohio.
1,610,200 Storage battery container. Stanley T. Campbell, assignor to The Aetna Rubber Co., both of Cleveland, Ohio.

*Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

Dominion of Canada

November 9, 1926

265,643 Pneumatic tire. John F. Palmer, Buffalo, New York, U. S. A.
265,717 Automobile running board. The Paine & Williams Co., Cleveland, assignee of Enoch E. Paine, Cleveland Heights, both in Ohio, U. S. A.

November 16, 1926

265,784 Overshoe. Joaquin de Noronha, Dusseldorf, Germany.
265,804 Pneumatic tire. Alexander Albert Holle, London, England.
265,839 Tire casing. Austin Ryan, Horning's Mills, Ontario.
265,843 Non-slip material. Allon Skipsey, St. Albans, Hertfordshire, England.
265,886 Multiple fastener. The Hood Rubber Co., assignee of Joseph E. Perrault, both of Watertown, Massachusetts, U. S. A.

November 23, 1926

266,013 Hockey stick protector. Richard B. Lennox, Sault Ste. Marie, Ontario.
266,036 Hose support. Laura M. Schneider, New York, N. Y., U. S. A.
266,175 Stocking guard. Henry Mear Cumming and James Alexander Emmott, assignees of an undivided two-thirds of interest of Charles Ferris Montagu Chambers, all of London, England.

November 30, 1926

266,314 Rubber facing for pump. The Hansen Rubber Products Co., assignee of George Troup Hansen, both of Salt Lake City, Utah, U. S. A.

United Kingdom

November 3, 1926

257,903† Elastic fabrics. F. D. Brigham, Montclair, New Jersey, U. S. A.
257,927† Cushion tire. T. P. D. Marshall and J. Hirst, Wingham, Ontario, Canada.
257,978 Air tubes for tires. W. L. Barron, 181A, Below Bar, Southampton.
258,016 Wheeled load carriers. A. J. Philip, 116, Windmill street, Gravesend, Kent.
258,019 Rubber covered photographic printing apparatus. W. Sack, 11 Wittenerstrasse, Rath, Dusseldorf, Germany.
258,041 Rubber headed bracket. H. R. Rignold, 159, Highbury New Park, London.
258,061 Motorcycle shock absorbing couplings. Enfield Cycle Co., Ltd., and F. W. Smith, Enfield Works, Hewell Road, Redditch, Worcestershire.
258,077 Air and water cushions. E. Richardson, 26, Sussex Gardens, Hyde Park, London.
258,157 Handles for hammers, baseball bats, golf clubs, etc. W. D. Layton, 444, Petaluma avenue, Sebastopol, California, U. S. A.
258,174 Fabric belting. F. W. Alexander and Lewis & Tylor, Ltd., Gripoly Mills, Cardiff.
258,183 Elastic waistband for pajamas. G. M. Harsh, Curtain avenue, Baltimore, Maryland, U. S. A.

November 10, 1926

258,259† Cushions for typewriter feet. K. Riehle, 84 Haupstrasse, Saulgau, Württemberg, Germany.
258,322 Surgical douches and hot water bottles. C. Forbes, Nithsdale, Kilmacolm, Renfrewshire.
258,333 Flexible shaft and other couplings. T. H. Large, Sunnyside, Ayr.
258,417 Golf ball cleaner. D. Wilkins, 2, White street, Moorfields, London.
258,476 Diaphragms for acoustic instruments. E. Reisz, 38 Goebenstrasse, Dahlem, Berlin, Germany.
258,498 Massage appliance. S. Falck, 29 Kammakaregatan, Stockholm.
258,512 Tire. L. Härter, 17 Sedanstrasse, Dresden, Germany.
258,517 Detachable heel lift. M. Mayorowitz, 783 Southern Boulevard, New York, N. Y., U. S. A.
258,534 Detachable heel member. A. E. C. Chamberlain, 30, Westcote Road, Streatham, and W. J. Denker, 32, Brixton Hill, both in London.
258,537 Rubber washers for tubes. G. Davies, 18, Alexandra Road, Bedford.
258,542† Microphone. E. Reisz, 38 Goebenstrasse, Dahlem, Berlin, Germany.
258,561† Elastic corset and brassière combined. A. Boudo, 58 Rue de Saussure, Paris, assignee of R. Penau, 28 Cours de la Marne, Bordeaux, both in France.
258,584† Electric cables. Siemensschuckertwerke Ges., Siemensstadt, Berlin, Germany.
258,585† Electric cables. Siemensschuckertwerke Ges., Siemensstadt, Berlin, Germany.

November 17, 1926

258,638 Printing surfaces. B. S. Atkins, 61, Sydenham Park, and A. L. Elwood of Waxed-Papers, Ltd., Nunhead Lane, both in London.
258,652 Pipe joints. New Eccles Rubber Works, Ltd., and S. W. Cox, Monton Road, Eccles, Lancashire.
258,674 Artificial dentures. H. J. Grainge, S. W. Wilding and Amalgamated Dental Co., Ltd., 5, Broad street, Golden Square, London.
258,728 Grooved pad to prevent plaques, ornaments, etc., from slipping. E. Temple, St. Ann's Lodge, Burley, Leeds.
258,729 Paving block. J. H. Butler, Norwood House, Mellalieu street, Middleton, Lancashire.
258,732 Telephone device. P. J. Pearsall and G. S. Oddie, Royal Aircraft Establishment, South Farnborough, Hampshire.
258,749 Cloth stretcher roller. F. B. Voegeli, Easton, Pennsylvania, U. S. A.

†Not yet accepted.

Chemical patents will be found on page 207. Machinery and Process Patents on pages 210-211.

November 24, 1926

259,012 Shoe fastening employing elastic strip. W. Crick, Hazelwood Road, Northampton.
259,087 Ladder socks. C. A. Hallam, Broadway House, Branstone Road, Burton-on-Trent.
259,136 Hot water bottles. W. Ebmeier, 48 Sonnenbergstrasse, Wiesbaden, Germany.
259,146 Rubber lined filter. A. Hales, The Old Red Lion, Leacroft, Kingston Road, Staines, Middlesex.
259,149 Inflating and deflating tire valves. F. Myers, 349 West 120th street, New York, N. Y., U. S. A.
259,175 Separable strip fastening. Firestone Tire & Rubber Co., Main street, assignee of W. C. Stevens, 168 Castle Boulevard, both of Akron, Ohio.
259,184† Pneumatic tire. U. Multedo and S. Corrente, 31c, Via XX Settembre, Genoa, Italy.

†Not yet accepted.

Germany

436,324 Clothes hanger with overlapping rubber flaps at the ends. Fritz Rosenberg, Augustastrasse 32, Schlachtensee.
436,588 Pessary cap with rubber-covered spiral spring edge and device for insertion. Wilhelm Hanns von Coelln, Cranachstrasse 11, Essen.
436,971 Cushion tire. Dr. Emerich von Vladar, Pariser Platz 6, Berlin.
437,012 Nipple for feeding bottles. Max Benthin, Jakobstrasse 33, Gorlitz.
437,013 Mat of rubber, rubber substitute or the like. Wilhelm Ebmeier, Sonnenberger Strasse 48, Wiesbaden, and Fritz Vanderstein, Beathusstrasse, Koblenz.
437,184 Exchangeable rubber tread patch. Edmund Balke, Wokrenterstrasse 14, Rostock.
437,673 Double-chambered inner tube. Hans Hüskes, Ludolf-Campahusenstrasse 34, Cologne.
437,709 Rubber cap for closing bottles and the like. Victor Reimann and Karl Becker, Nürnbergerstrasse 15, Dresden.
437,759 Solid tire. Albert Klafke, Hardenbergstrasse 18, Berlin-Charlottenburg. (Addition to patent No. 424,827.)

France

611,933 Improvements in pneumatic tires. A. A. Holle.
613,167 Tires for bicycles, automobile, etc. Z. Schmidt.
613,662 Puncture-proof pneumatic tire for automobiles. G. Bellini.
613,772 Tubes. The Dunlop Rubber Co., Ltd.
614,054 Automobile tires. G. D. Pearson.

Trade Marks

United States

Two Kinds of Trade Marks Now Being Registered

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19,, 1920, Section 1 (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the later act, trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

November 16, 1926, Act of February 20, 1905

220,642 Double line square with inner line of heavy black, enclosed within the square the words: "STEP WELL and "HEALTH SHOE"—boots, shoes and slippers of leather, rubber, fabric or combinations of such materials. Beck Hazard, Inc., New York, N. Y.
220,649 PALBROOK—garters, raincoats, etc. The Palace Clothing Co., Kansas City, Missouri.
220,658 LUCKY OWNER—tire valves. Downs & Heckling, Cleveland, Ohio.
220,708 Checkerboard square in the center of which is superimposed a black rectangle—rubber tube patching, inner tubes, blowout patches and radiator hose. Research Club, Inc., Chicago, Illinois.
220,726 Representation of a balloon tire which has picked up a tack, in the center of the representation the monogram: TEL—puncture closing compound for pneumatic tires. T. E. Law, Mesa, Arizona.
220,749 COPPER QUEEN—rubber and canvas belting, hose and packing. Pioneer Rubber Mills, San Francisco, California.
220,754 ULTRAX—vulcanization accelerators. The Wolff-Alport Chemical Corporation, Brooklyn, New York.
220,823 Square containing the representation of a college, and across the top the words: "KOLLEGE TOWN CLOTHES"—wearing apparel including shoes of rubber, leather, fabric, etc. Phil A. Halle, Inc., Memphis, Tennessee.
220,831 The word: "MILLER-KINS" with the letters in irregular formation —overshoes, etc. I. Miller & Sons, Inc., Long Island City, New York.
220,857 Fancy letter: S—combination leather, rubber and fabric shoes, etc. Foot, Schulze & Co., St. Paul, Minnesota.
220,880 Square on the left of which is a large letter: K, which serves as the first letter of the three words: KALB'S KLASSY KICKS—shoe of leather, rubber, fabric, etc. Kalb Shoe Manufacturing Co., Rochester, New York.

November 16, 1926, Act of March 19, 1920

220,952 The word: "HARTMAN'S" in large type, and beneath in small type the words: "EVERYTHING FOR THE HOME"—rubberized floor coverings, etc. Hartman Furniture & Carpet Co., Chicago, Illinois.

November 23, 1926, Act of February 20, 1905

221,007 Representation of a bank with the words: "GOODWILL SAVINGS BANK" superimposed across the front—shoes, slippers and boots of leather, rubber and fabric. Arthur A. Williams, doing business as Goodwill Shoe Co., Holliston, Massachusetts.
221,008 VITEX—garters, arm bands, etc. The A. J. Donohue Corporation, Milford, Connecticut, assignor to F. W. Woolworth Co., New York, N. Y.
221,016 Pennant with the words: "EVER-STIK"—rubber heels. The Ever-Stik Rubber Co., Mount Jewett, Pennsylvania.
221,018 The words: "ROSE MARIE SLIPPER SHOP" with the representation of a rose—shoes of leather, rubber, fabric, etc. Bernard E. Weber, San Antonio, Texas.
221,056 JACKLASTIC—elastic bottoms for use on parts of garments. The Russell Manufacturing Co., South Farms, Middletown, Connecticut.
221,242 ANCHOR—patching repair kits and parts thereof for pneumatic tire and rubber goods. Harry Haudenschild, doing business as The Anchor Supply Co., Toledo, Ohio.
221,273 Double circle containing the word: "HARCO"—rubber soles, heels, heel pads, etc. Hartwell Leather Co., Malden, Massachusetts.

November 23, 1926, Act of March 19, 1920

221,281 The words: "SUPERWEAR," "FORD TRANSMISSION LINING," "SUPER WEAVE" and "SUPER QUALITY"—Ford transmission and brake lining and belting. Superwear Manufacturing Co., Paterson, New Jersey, assignor to Superwear Manufacturing Corporation, Brooklyn, New York.
221,282 LINCOLN—rubber typewriter keys. Lincoln Rubber Key Co., New York, N. Y.

November 30, 1926, Act of February 20, 1905

221,359 Octagon in the center of which is the letter: "P"—tires. Pennsylvania Rubber Co., Jeannette, Pennsylvania.
221,363 MILE-ZEE—tire patches. John J. Miles, doing business as Miles Rubber Co., Lynbrook, New York.
221,439 Black square containing the representation of a foot and the words: "DR. A. REED CUSHION SHOE," "THE EASIEST SHOE ON EARTH" and "DOCTOR A. REED'S"—shoes of leather, rubber, fabrics, etc. J. P. Smith Shoe Co., Chicago, Illinois.
221,452 Double circle containing the word: "HARCO"—rubber cement. Hartwell Leather Co., Malden, Massachusetts.
221,472 Representation of a woman's head in the center of a fancy circle, across the circle the words: "IN THE CIRCLE OF FASHION FOOTWEAR"—boots and shoes of leather, rubber, fabric, etc. Novelty Shoe Co., Chicago, Illinois.

November 30, 1926, Act of March 19, 1920

221,497 PARCLBELT—conveyer belts. Security Rubber & Belting Co., Chicago, Illinois.

December 7, 1926, Act of February 20, 1905

221,535 Square containing the representation of a man putting a patch in a tire and the words: "LOCKTITE" and "USE 3 LAYERS FOR CASING REPAIRS"—tire patch. Locktite Patch Co., Detroit, Michigan.
221,561 LIMBER LASTIC—surgical elastic fabric goods. Brewer & Co., Worcester, Massachusetts.
221,627 HARVESTER—tires, inner tubes, tire casings, covers, boots and patches. Chicago Mail Order Co., Chicago, Illinois.
221,629 Representation of a horseshoe superimposed on a shield lined to indicate the color yellow—tires. Racine Horseshoe Tire Co., Racine, Wisconsin.
221,630 Representation of an armored knight on horseback, this representation enclosed within a square, on each side of the square are flowing pennant ends—inner tubes for penumatic tires. The B. F. Goodrich Co., New York, N. Y.

Dominion of Canada

Registered

November 9, 1926

40,719 Ornamented blue binding—footwear. Canadian Goodrich Co., Ltd., Kitchener, Ontario.

November 30, 1926

40,808 Representation of the front and back of a circular shield device; the front view showing the words: "PONTIAC CHIEF OF THE SIXES" in circular form and the head of an Indian; the back view showing the words: "PRODUCT OF GENERAL MOTORS" within a wreath—auto accessories. General Motors Corporation, Detroit, Michigan, U. S. A.

United Kingdom

November 3, 1926

471,093 LONVITA—raincoats. Miriam Rosetta Freeman, trading as Anglo-Scottish Rubber Co., 71, Westgate Road, Newcastle-on-Tyne.
471,881 BEXPRUF—raincoats, etc. James Beck & Son, 18, Bridge street, Chester.
472,243 XETAL—raw, or partly prepared latex for use in manufactures. Safety Glass & Xetal Products, Ltd., Nottingham Road, Stapleford, Nottinghampshire.

November 10, 1926

473,179 NON-PLEX—soles, heels, heel tips and protectors for boots and shoes. Sussex Rubber Co., Ltd., 32, Houndsditch, London, E. 1.

473,486 The word: SORBELLE, the last letter elongated to form a pennant which contains the words: TRADE MARK—goods manufactured from rubber and gutta percha. The Sorbo Rubber-Sponge Products, Ltd., Sorbo Works, Woking, Surrey.

November 17, 1926

462,579 Square containing the representation of a man sleeping, above the representation the word: "PTREE," below the word: "BED"—air beds. W. Petrie & Co., Ltd., 2, Tudor street, London, E. C. 4.

473,123 IONRUBBER—all goods contained in Class 40. Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

473,124 GALVOTEX—all goods included in Class 40. Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

473,125 GALVATEX—all goods included in Class 40. Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

473,126—GALVALEX—all goods included in Class 40. Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

473,127 GALVOLEX—all goods included in Class 40. Dunlop Rubber Co., Ltd., Fort Dunlop, Holly Lane, Erdington, Birmingham.

November 24, 1926

466,994 FISK—tires, inner tubes, patches for tires and rubber solution. The Fisk Rubber Co., Oak street, Chicopee Falls, Massachusetts, U. S. A. (Marks & Clerk, 57 Lincoln's Inn Fields, London, W. C. 2.)

473,247 Representation of a tower enclosed within a triangle, around the triangle is the representation of a hose support, above the representation the words: "TOWER BRAND" and "GENTS HOSE SUPPORTERS"—suspenders for socks and stockings. The firm trading as M. Taylor, 170, Tower Bridge Road, London, S. E. 1.

473,673 Fanciful circle at the top of which is the word: "OTOMATIC," and below the word: "SERVICE"—puncture closing compositions. Ubiquitous Services, Ltd., 550, Oxford street, London, W. 1.

Designs

United States

71,562 Golf ball. Term 14 years. Albert E. Penfold, Birmingham, assignor to The Dunlop Rubber Co., Ltd., Regents Park, London, both in England.

71,574 Pneumatic tire. Term 14 years. Lz Adam Brown, Alto, assignor to Cordurov Tire Co., Grand Rapids, both in Michigan.

71,582 Tire tread. Term 14 years. Archie H. Gollings, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio.

71,583 Bathing cap. Term 7 years. Florence L. Griffen, Brooklyn, New York, assignor to Revere Rubber Co., Chelsea, Massachusetts.

71,612 Tire. Term 14 years. Paul W. Litchfield, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio.

71,627 Tire. Term 14 years. Sidney M. Schott, assignor to Morgan & Wright, both of Detroit, Michigan.

Germany

965,136 Light shoe with stitched insole, rubber laces and tread stitched or gummed on. Hermann Ernst, Ludwigsburg.

965,446 Toy figure of rubber sheet. Vulkan Gummiwarenfabrik Weiss & Boessler A.-G., Leipzig-Lindenau.

965,690 Rubber bandage to prevent flat-feet, fallen arches, etc. Bernhardt Kleini, Südplatz 3, Leipzig.

965,973 Rubber slip-over stocking-protector. Wilhelm J. Jesch, Dachauerstrasse 28, Munich.

966,047 Inflatable rubber spiral. Carl Plaat, Köln-Nippes.

966,139 Soft rubber lid for anode-batteries. Stau-Akkumulatoren-Fabrik G. m. b. H., Dresden.

966,212 Toy ball closing. Harburger Gummiwarenfabrik Phoenix A.-G., Harburg (Elbe).

966,237 Protective covers for typewriters and other machines, of elastic rubber fabrics or rubberized material. Dr. Dannenberg & Co., Köln-Lindenthal.

966,241 Joker. Zieger & Wiegand A.-G., Gummiwarenfabrik, Leipzig.

966,465 Exchangeable rubber and leather heel. Hermann Jung, Siegen i. W.

966,551 Stocking protector of thin sheet rubber. Gummiwarenfabrik Carl Plaat, Köln-Nippes.

966,807 Swimming-apparatus of rubber. Harburger Gummiwaren-Fabrik Phoenix A.-G., Harburg a. d. Elbe.

966,841 Construction material of rubber with inserts of fabric. Continental-Caoutchouc-und Gutta-Percha-Compagnie, Hannover.

966,862 Inflatable toys in the shape of figures of all kinds that can stand, sit or lie without support. Gummiwaren-Fabrik bei Melle Wortmann & C. Bösch, Melle.

967,020 Rubber cover for ski-handle. Continental-Caoutchouc-und Gutta-Percha-Compagnie, Hannover.

967,161 Bicycle saddle cushion of sponge rubber with cover of rubber sheet cut out on one side. Herbert Lindemann, Wandsbek.

967,170 Rubber elastic garter. Vereinigte Gummiband-Webereien Tillmanns, Schniervind & Schmidt, Elberfeld.

967,366 Closing for footwear consisting of overlapping rubber bands. Ernest Sick, Klostergassig, Frankfurt-am-Main.

967,381 Rubber perforated cloth for obstetrical purposes. Dr. Hans Kritzler, Mannheim, O. 3, 4a.

967,768 Non-skid devicve for rubber tires. Continental-Caoutchouc- und Gutta-Percha-Compagnie, Hannover.

967,775 Sporting goods combined with foam rubber. Eichwald & Co., Leipzig-Eutritzsch.

967,867 Rubber athletic shoe. Mannheimer Gummi-guttapercha-und-Asbest-Fabrik A.-G. Mannheim.

968,086 Rubber belt with water channels on the traversing side. Firma Ernst Siegling, Hannover.

968,102 Bathing slipper of rubber with adjustable buckle. Firma J. Landsberger, Berlin.

968,212. Joker. Julius Friedlaender, Gummiwarenfabrik, G. m. b. H., Berlin.

968,479 Unbreakable, flexible bevel. Otto Beyer, Margaretenstrasse 4, Leipzig-Reudnitz.

968,865 Elastic block tire. Rudolf Roderwald, Am Tempelhoferberg 5 a., Berlin.

969,288 Rubber footing. Elfriede von Marcard, née von Sanden, Geibelstrasse 27, Hannover.

969,289 Infant's feeding-bottle with rubber nipple threaded to screw on to bottle. J. & T. Jackle, Locherhof, Württemberg.

969,427 Wind-breaker (jacket) with easily detachable, waterproof lining. Süddeutsche Gummimantel Industrie. Louis Kahn, Frankfurt-am-Main.

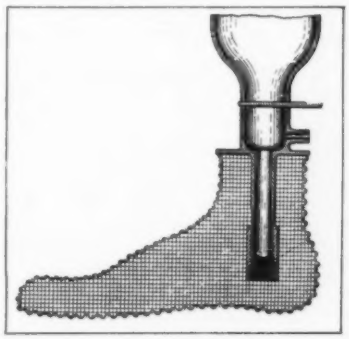
Labels

United States

31,325 QUIK-STIK—patches. Quik-Stik Rubber Works, Chicago, Illinois. Published April 1, 1926.

Rubber and Fiber Shoe Material

Two of the outstanding properties of leather that admirably suit it for making shoes are its porosity and resistance to the penetration of water. In general substitutes for leather are deficient in porosity and therefore not suitable for use in footwear. By a recent invention this defect has been eliminated in the production of a unique fibrous material in the structure of which rubber is coagulated as a binder and water repellent.[1]



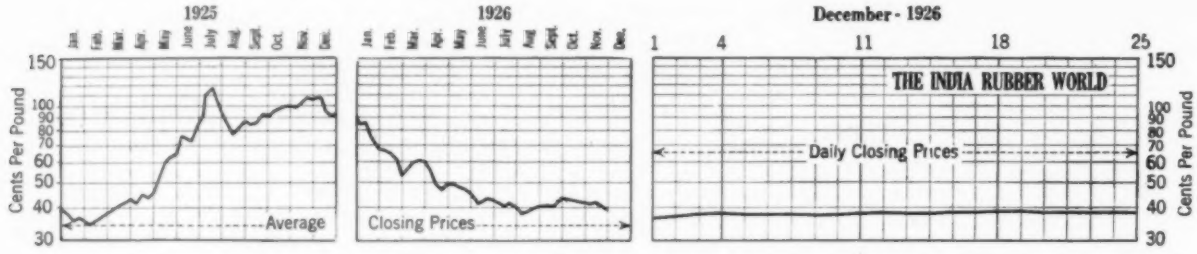
Wire Shoe Mold

In its preparation a choice of fibers is available such as wood, hemp, jute, leather, wool, cotton, asbestos, etc. The fibers selected are thoroughly pulped, dispersed in a miscible liquid, one being a solvent and the other a precipitant of rubber. Rubber, dissolved in toluol, is added to the dispersed fibers, and the solution is then so treated as to bring about precipitation of the rubber on the fibers.

The rubberized pulp thus produced can be manufactured into artificial leather sheets or molded forms.[2] For the manufacture of shoes, the rubberized pulp is given the footwear shape preliminary to subsequent molding in a wire screen mold or shoe last. This is accomplished by flowing the pulp into the wire mold and causing it to be arranged as a mat on the inside of the screen mold. The material is dried in place and removed by opening the hinged mold. It is then in condition for further manufacturing and curing in a vulcanizing mold. Instead of forming the full shoe of this artificial leather, vamps only can be made by using a wire mold adapted for that purpose.

This artificial leather is particularly suited to stand wear, while being porous and water resistant because of its fibrous structure combined with the rubber as the binder and water proofing element.

[1] United States patent No. 1,595,312.
[2] United States patents Nos. 1,595,048; 1,595,049; 1,595,374; 1,595,375.



Ratio Graph of New York Closing Prices of Spot Ribbed Smoked Sheets

Review of the Crude Rubber Market

New York Open Market

THE rubber market for the past month equalled in dullness that for November. The spot price for ribbed smoked sheets advanced one cent during the first half of the month and the same amount in the last half. Consumers' interest was confined to small filling in lots for immediate use and to keeping down their inventories previous to the opening of the new year.

The outstanding market event was the announcement early in December that a group of the leading rubber and automobile manufacturing companies had formed a buying organization to maintain a reserve of 50,000 tons of rubber in New York, the object being to prevent serious price fluctuations. The president of one large American rubber company speaking in approval of the new move is thus reported:

"The ultimate effect will be division of rubber price control between growers and manufacturers," he said. "A 'cushion' of 50,000 tons of rubber in New York will make British markets, with a reserve now approaching 40,000 tons, take notice.

"Stabilization of the rubber market in this manner will act as a safeguard to the American consumer by preventing an unwarranted skyrocketing of prices in times of stress."

One representative automotive executive asserted concerning this purchasing organization: "The obvious purpose is to enable tire manufacturers to plan production and make future contracts without fear of sudden declines in the basic price."

The British information service of the Bankers Trust Co., estimates 1926 crude rubber requirements of the world as follows: United States, 390,000 tons; Great Britain, 40,000 tons; France, 39,000 tons; Germany, 23,000 tons; Italy, 12,000 tons; Japan, 19,000 tons; Canada, 21,00 tons. The rest of the world 28,000 tons. The total of these estimates deducted from the world's estimated 1926 production, 625,000 tons, leaves a surplus of 53,000 tons, of which it is expected that 70 per cent will be held in London at the close of the year. As a matter of fact London stocks on December 25 were reported as 50,158 tons.

The week by week December market condition may be summarized as follows: the first week, ended November 27, the market was very dull with downward price tendency caused by heavy arrivals and lack of manufacturers' orders. The second week was equally quiet and absolutely without special features. The next week there was a limited factory demand and higher cables from London near the end of the week stimulated a small demand by dealers. The week ended the 18th continued dull and steady despite large arrivals and more or less factory demand.

During Christmas week the factories bought numerous small filling in lots for actual needs but in general the tendency was to keep down rubber inventories. London held firm with few offers coming from the Far East. The recently organized buying interest served to support the Rubber Exchange on all declines. Higher prices are looked for soon after January 1.

Parás held steady but neglected. Balatas were very low with a few scattering inquiries.

Importations of all grades in November were 41,107 tons, compared with 36,050 tons one year ago. Plantation arrivals for November were 39,212 tons compared with 33,066 tons one year ago. Total importations of plantation rubber for 11 months ended November 30 were 356,059 tons, compared with 320,760 tons for the corresponding period of 1925. Total importations of all grades of rubber for the 11 months ended November 30 were 379,059 tons compared with 345,318 tons for the corresponding period of 1925. Arrivals of crude rubber December 1 to 24 were 29,408 tons. Arrivals for the full month of December are estimated at 32,000 tons, compared with 36,342 tons for November.

RUBBER AFLOAT TO THE UNITED STATES

(Figures in Long Tons)

Week Ended	Brt. Malaya	Ceylon	E. Indies	London	Total
November 27.....	4,973	796	1,635	3,164	10,568
December 4.....	6,439	1,109	1,741	114	9,403
December 11.....	5,704	1,267	872	45	7,960
December 18.....	6,505	703	757	50	8,015
December 25.....	4,468	1,227	1,142	80	6,917

Gross exports of crude rubber from Malaya in November totaled 34,302 long tons and gross imports into Malaya, including wet rubber, 12,201 long tons. Dealers' stocks in Singapore and Penang October 31 amounted to 26,600 long tons.

New York Open Market—Spot Closing Rubber Prices—Cents Per Pound

PLANTATIONS	November, 1926							December, 1926												
	22	23	24	25*	26	27	29	30	1	2	3	4	6	7	8	9	10	11	13	14	15	16	17	18
Sheet																								
Ribbed smoked	38¼	38⅛	38¼	....	37¾	37½	37	37⅛	36¾	37¼	37¾	37⅝	37⅛	37⅛	37⅛	37	37¼	37⅜	38	37¾	37¾	38	38	38¼
Crêpe																								
First latex	38⅛	38⅛	38⅜	....	37¾	37½	37⅛	37⅛	36¼	37¼	37¾	37⅝	37⅛	37⅛	37⅛	37	37¼	37⅝	38	37⅞	37⅞	38	38	38½
No. 2 blanket	36⅝	36⅞	36⅞	....	36⅛	35¾	35½	35	34¼	35⅛	35⅜	35⅝	34⅛	34⅞	34⅞	34⅛	34¾	35⅛	35½	35⅜	35⅛	35½	35½	35⅞
No. 3 blanket	36⅛	36½	36½	....	35⅜	35	34¾	34⅜	33¾	34⅝	35⅛	35	34⅛	33⅞	34	35⅛	34⅛	34½	35	35	34⅞	35⅛	35	35⅜
No. 4 blanket	35⅜	35½	35½	....	34⅜	34⅛	34	33⅞	32¾	33⅝	34½	33⅞	33½	33¾	33¼	33	33⅜	33¾	34	34	33⅞	34⅛	33⅞	34⅛
Thin clean brown	36⅛	36½	36½	....	35⅜	35	34⅝	34½	33¾	34⅜	35⅛	35	34⅛	33⅞	34⅛	33⅞	34⅜	34½	35	35	34⅜	35	35	35¼
Rolled brown	32⅜	32½	32⅜	....	31⅜	31⅛	31	31⅛	30½	31	31⅜	31½	30⅜	30⅝	30⅜	30½	30⅞	31½	31½	31⅜	31⅛	31⅛	31⅛	31⅛
Off latex	37¼	37⅜	38¼	....	37⅜	37	36½	36⅜	36¼	36¾	37¼	37⅝	36⅜	36½	36⅜	36½	36¾	37⅜	37½	37¼	37⅜	37½	37½	37¼

*Holiday.

New York Quotations

Following are the New York spot and future rubber quotations for one year ago, one month ago, and December 27, the current date:

Plantation Hevea	December 24, 1925	November 24, 1926	December 27, 1926
Rubber latex (Hevea)...gal.	$3.00 @	$1.50 @	$1.50 @
CREPE			
First latex crepe, spot	.89 @.90	.38½ @	.39¼ @.39¼
Jan.	.88 @.89	.38½ @	.39¼ @
Jan.-Mar.	.85 @.86	.39 @	.39½ @.40
Apr.-June	.80 @.82	.40 @	.40 @.40½
Off latex, spot	@	.38 @	.38½ @.39
Amber No. 2, spot	.86 @	.37½ @	.36½ @.37
Jan.	.85 @	.37½ @	.36½ @
Jan.-Mar.	.85¾ @	.38 @	.36½ @.36¾
Apr.-June	.81 @	.39 @	.36¾ @.37
Amber No. 3, spot	.84 @	.36½ @	.35½ @.35¾
Brown, thin, clean	.85 @	.36½ @	.35¼ @.35¾
Brown specky	.83 @	.36 @	.34¾ @.35½
Brown, roll	.81 @	.33 @	.32 @.32½
Sole crepe	1.08 @	.60 @	†.57 @
Sheet			
Ribbed, smoked spot	.89 @.90	.38½ @	.39 @.39¼
Jan.	.89 @	.38½ @	.39¼ @
Jan.-Mar.	.85 @.86	.39 @	.39½ @.40
Apr.-June	.80 @.82	.40 @	.40 @.40½
East Indian			
PONTIANAK			
Banjermassin	.22 @	.15 @.17	.12 @
Pressed block	.33 @.34	.26½ @.28	.25 @
Sarawak	.22 @	.15 @	.12 @
South American			
PARAS			
Upriver, fine	.82 @	.34 @	.34 @.34½
Upriver, fine	*.99 @	*.46 @	@
Upriver, medium	.76 @	.30 @	.30 @.30½
Upriver, coarse	.64 @	.24½ @	.24½ @.25
Upriver, coarse	.85 @	*.36 @	@
Islands, fine	.68 @	.28 @	.28 @.28½
Islands, fine	*.95 @	*.41 @	@
Acre, Bolivian, fine	.83 @	.34½ @	.34½ @.35
Acre, Bolivian, fine	*1.00 @	*.46 @	@
Beni, Bolivian	.83 @	.34½ @	.34½ @.35
Madeira, fine	.84 @	.34½ @	.34½ @.35
Peruvian, fine	.80 @	.33 @	.33 @.33½
Tapajos, fine	.69 @	31 @	.31 @.31½
CAUCHO			
Upper Caucho ball	.65 @	.25 @	.25 @.25½
Upper Caucho ball	*.87 @	*.36 @	@
Lower Caucho ball	.60 @	.21 @	.21 @.21½
Manicobas			
Ceará negro heads	†.60 @	.32 @	.30 @
Ceará scrap	†.35 @	.16 @	.16 @
Manicoba, 30% guar	.58 @	.33 @	.31 @
Mangabeira, thin sheet	.55 @	.35 @	.31 @
Centrals			
Central scrap	.56 @	.20½ @	.23 @
Central wet sheet	.48 @	.15 @	.17 @
Corinto scrap	.56 @	.28 @	.23 @
Esmeralda sausage	.56 @	.20½ @	.23 @
Guayule			
Duro, washed and dried	.74 @	.31½ @	.31 @
Leon, washed and dried	@	@	@
Gutta Percha			
Gutta Siak	.37 @	.31 @	.30 @
Gutta Soh	.30 @	@	.38 @
Red Macassar	3.00 @3.50	2.90 @	2.50 @ 3.00
Balata			
Block, Ciudad Bolivar	.64 @	.42 @.44	.40 @.41
Colombia	.53 @	.38 @.39	.38 @
Panama	.52 @	.39 @	.38 @
Surinam, sheet	.73 @	.68 @.71	.71 @
amber	.80 @	.70 @	.78 @
Chicle			
Honduras	‡.54 @	‡.56 @.60	‡.56 @.60
Yucatan, fine	‡.55 @	‡.56 @.60	‡.56 @.60

*Washed and dried crepe. Shipment from Brazil.
†Nominal. ‡Duty Paid.

New York Spot Closing Rubber Prices—Cents, Per Pound

PLANTATIONS	December, 1926 20	21	22	23	24	25*
Sheet						
Ribbed smoked	38½	38⅜	38⅝	38¾	39	....
Crêpe						
First latex	38½	38½	38⅝	38¾	39	....
No. 2 blanket	36	35¾	36	36½	36⅝	....
No. 3 blanket	35½	35¼	35⅜	36	36	....
No. 4 blanket	34¼	34⅛	34½	35	35⅛	....
Thin clean brown	35½	35¼	35⅜	35¾	36	....
Rolled brown	31⅝	31½	31⅝	32¼	32½	....
Off latex	38	37⅝	38⅛	38⅜	38½	....

*Holiday.

London

Early in the month announcement of the organization by a group of the largest American rubber tire and automobile interests for the purchase of a heavy reserve of crude rubber brought forth the following London comment as to its signification.

At first sight this would appear inimical to restriction and to the producing interests. We think the reverse is the case and that the combine represents an effort to work with restriction and achieve something like stability of price for both producer and manufacturer.

The necessity of carrying an adequate stock to protect themselves from unduly high prices has been recognized for many years by consumers the world over, and particularly by the large American manufacturers with their combined consumption of more than 30,000 tons per month, or about 1,250 tons per working day. Producers and others interested in the rubber market have blamed the buyers for lack of foresight in not buying rubber when it was cheap, and for scrambling for it when it was dear. Apart from any other reasons, manufacturers, and particularly American manufacturers, have been handicapped in the past by lack of finance. With a young and rapidly-growing trade such as the American tire trade, large amounts of money are constantly required for new buildings and machinery, while changes in tire types have recently involved the manufacturers in heavy expense for alterations to existing machinery and plant. With such liabilities to provide for it is perhaps not to be wondered at that manufacturers have not been able to set aside sufficient capital to carry adequate stocks of rubber.

The present organization provides the necessary capital to carry such stocks and with the restriction scheme clearly defined with cuts under 1 shilling 9 pence and releases over 2 shillings it seems probable that the combine will work to these figures, putting rubber by at under 1 shilling 9 pence and releasing it only at a price substantially over 2 shillings.

Two further points are worth emphasizing: Firstly, we do not believe that the formation of this concern indicates any change in the method of buying the ordinary day to day requirements of those manufacturers who are members of the organization. We believe their requirements beyond this reserve will be bought in the open market through the same channels as hitherto. Secondly, the combine comprises only the larger tire manufacturers. The smaller factories will apparently be left to fend for themselves as hitherto.

Spot prices held very steady and firm with a slight rising tendency which effected an increase from 18½ pence December 1 to 20 pence December 22. The pre-holiday market closed dull at 19 pence.

London stocks increased from week to week during December at an accelerated rate. The weekly record was as follows: November 27, 43,859 tons; December 4, 44,395 tons; December 11, 46,349 tons; December 18, 49,108 tons, and December 25, 50,158 tons.

Singapore

The Singapore market as usual followed very closely those of London and New York. The month was generally quiet and uneventful. Spot prices declined between the 1st and the 24th from 17⅞ pence to 18⅜ pence, with intermittent fractional fluctuations. During Christmas week there was a short revival of fair buying interest.

AMONG THE PRINCIPAL COMMODITIES IMPORTED INTO RUSSIA during the calendar year 1925 were, according to Soviet statistics, 6,448 metric tons of caoutchouc, value 14,612,000 rubles. The gold ruble is valued at $0.5146.

Low and High New York Spot Prices

PLANTATIONS	December 1926*	1925	1924
First latex crepe	.$0.36¾ @ $0.39	$0.89 @ $1.10	$0.35⅝ @ $0.39¾
Smoked sheet, ribbed	.36¾ @ .39	.88 @ 1.10	.35⅝ @ .39⅜
FARAS			
Upriver, fine	.31 @ .33	.79 @ 1.04	.33½ @ .39⅜
Upriver, coarse	.21 @ .23	.57 @ .76½	.23¾ @ .29
Islands, fine	.25 @ .29	.65 @ .85	.29¼ @ .33¾
Cametá	.17 @ .19	.40 @ .48½	.18¾ @ .20½

*Figured to December 23, 1926.

The Rubber Exchange of New York, Inc.

TRADING on the Rubber Exchange from November 25 to December 24, inclusive, resulted in the sale of 6,427 contracts, equivalent to 16,067½ long tons, as compared to 4,963 contracts and 11,287½ tons the previous month, October 25 to November 23.

Consumption of rubber by American rubber companies is reported to have been 1,750 tons less in November than in October. This was 8,242 tons less than November imports.

The market for the week ended November 27 showed only occasional buying support with mid-week temporary reaction followed by sagging due to lower cables from London, and a broadening interest. The principal buying interest began in the May futures.

The second week new lows were recorded in all positions. The announcement, December 2, of the formation of a buying combination among leading rubber and automobile manufacturing companies caused bear operators to cover and advanced London prices one penny.

The market during the week ended December 11 was practically featureless and business in all positions was comparatively small in volume.

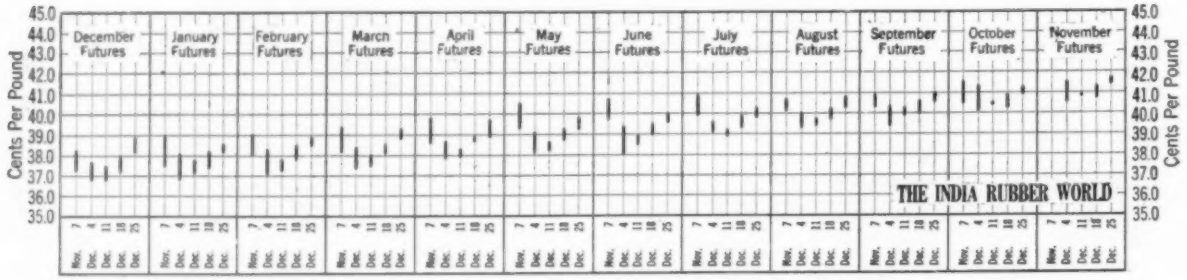
For the week ended December 18, the market was quiet, prices were very steady and exhibited very narrow fluctuations.

Christmas week the holiday season acted to slow activities somewhat. The undertone, however, was strong and the volume of business small.

Typical of the general dullness of the market the past month was the slight difference between the high and low prices for December rubber. In no instance was the spread between high and low for that position greater than 0.8 cents and for nearly half the month there was no difference. The extremes of December rubber for the month were 38.9 high to 36.6 low.

Under a new rule effective December 27 trading in the current month will stop at noon on the last trading day upon which transferable notices may be issued.

New York Rubber Exchange—High and Low Monthly Futures—Cents Per Pound—November 7 to December 25, 1926



The Rubber Exchange of New York, Inc.

Daily Market Futures—Ribbed Smoked Sheets—Closing Prices—Cents Per Pound

1926	November 22	23	24	25*	26	27	29	30	December 1	2	3	4	6	7	8	9	10	11	13	14	15	16	17	18	20	21	22	23	24	25*
Nov.	38.2	38.2	38.6	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dec.	38.1	38.2	38.3	...	37.7	37.3	36.8	37.1	35.6	36.5	37.7	37.3	36.8	37.0	36.9	37.1	37.1	37.5	37.9	37.6	37.2	37.8	37.8	38.0	38.2	38.5	38.4	38.9	38.7	...
1927																														
Jan.	38.3	38.5	39.0	...	38.0	37.5	37.0	37.5	36.8	37.0	38.1	37.4	37.3	37.2	37.7	37.3	37.4	37.5	38.1	37.8	37.4	37.6	37.8	38.2	38.2	38.2	38.3	38.6	38.8	...
Feb.	38.8	38.8	39.1	...	38.5	38.0	37.5	37.8	37.1	37.2	38.3	37.5	37.3	37.3	37.8	37.3	37.7	37.8	38.3	38.1	37.8	37.9	38.2	38.5	38.5	38.5	38.5	38.9	39.2	...
Mar.	39.0	39.1	39.4	...	38.6	38.2	37.8	37.9	37.4	37.8	38.4	37.8	37.5	37.6	37.9	37.6	37.8	38.0	38.6	38.5	38.1	38.4	38.3	38.6	38.9	38.8	38.8	39.3	39.5	...
Apr.	39.5	39.5	39.8	...	39.1	38.6	38.1	38.4	37.8	38.2	38.7	38.0	37.9	37.9	38.2	37.9	38.1	38.3	38.8	38.7	38.3	38.7	38.6	38.9	39.2	38.9	39.1	39.7	39.8	...
May	40.0	39.9	40.5	...	39.6	39.3	38.1	39.0	38.4	38.7	39.1	38.5	38.3	38.2	38.5	38.2	38.6	38.6	39.0	38.9	38.7	38.9	38.8	39.3	39.4	39.3	39.5	39.8	40.0	...
June	40.2	40.2	40.7	...	40.1	39.7	39.2	39.4	38.7	38.0	39.4	38.9	38.5	38.6	38.8	38.5	38.9	38.9	39.4	39.2	39.0	39.3	39.2	39.5	39.6	39.6	39.7	40.0	40.3	...
July	40.4	40.4	40.9	...	40.4	39.9	39.4	39.6	39.1	39.3	39.5	39.3	38.9	39.1	39.1	38.9	39.1	39.2	39.8	39.5	39.3	39.6	39.6	39.9	39.8	39.8	39.9	40.3	40.4	...
Aug.	40.6	40.6	41.1	...	40.7	40.1	39.6	40.0	39.3	39.4	39.9	39.7	39.4	39.6	39.7	39.5	39.6	39.7	40.2	39.9	39.7	40.0	40.0	40.3	40.3	40.3	40.5	40.8	41.0	...
Sept.	40.8	40.8	41.3	...	40.9	40.3	39.8	40.2	39.5	39.4	40.3	40.0	39.9	39.9	40.1	40.0	40.1	40.2	40.5	40.3	40.0	40.3	40 3	40.6	40.6	40.6	40.7	41.0	41.3	...
Oct.	41.0	41.0	41.5	...	41.1	40.5	40.1	40.4	40.3	40.3	41.3	40.6	40.5	40.4	40.5	40.4	40.5	40.4	40.8	40.6	40.2	40.6	40.6	40.9	40.9	40.6	41.0	41.3	41.6	...
Nov.	...	...	...	...	...	...	...	...	40.8	40.5	41.5	41.0	40.9	40.8	40.9	40.8	40.9	40.9	41.2	41.0	40.7	41.0	41.0	41.3	41.3	41.4	41.4	41.7	42.0	...

*Holiday.

The Market for Rubber Scrap

New York

A seasonal year end dull market prevails. Available stocks of scrap are small and all the big tonnages, usually in dealers' hands, are all sold out and distributed to the reclaimers. Scrap at present is being secured only in hand-to-mouth lots. Prices on boots and shoes, mechanicals and tires remain unchanged from a month ago except in a few instances where a small advance has been made. All qualities of inner tube scrap have declined slightly except mixed tubes which are quoted ⅛-cent higher.

BOOTS AND SHOES. The demand for boots and shoes is strong from the auto top trade which is its principal outlet. The outlet in that line is good.

INNER TUBES. These are in active demand. Shading of prices is due to indifference of reclaimers, and scrap is in a waiting position.

TIRES. Offerings from shippers have been limited. Heavy weather also interfered with shipments. Hand-to-mouth demand has prevailed. Export business was limited.

AIR-BRAKE HOSE. A feature of the market was the strong advance in air-brake hose because of its limited supply which is confined to offerings of railway companies. Prices paid for this scrap are reported the highest within 10 years.

Quotations for Carload Lots

December 27, 1926

Boots and Shoes		
Boots and shoes, black	lb.	$0.02⅛ @ $0.02¼
Red and white	lb.	.01⅛ @ .01¼
Trimmed arctics, black	lb.	.01⅛ @ .01¼
Untrimmed arctics	lb.	.00¾ @ .00⅞
Tennis shoes and soles	lb.	.01 @ .01⅛
Hard Rubber		
No. 1 hard rubber	lb.	.13 @ .14
Battery jars, black compound	lb.	.02 @ .02½
Inner Tubes		
No. 1, floating	lb.	.09½ @ .09¾
No. 2, compounded	lb.	.07⅛ @ .07⅜
Red	lb.	.06¾ @ .06½
Mixed tubes	lb.	.06¾ @ .07
Mechanicals		
Mixed black scrap	lb.	.01 @ .01⅛
Heels	lb.	.00¾ @ .00⅞
Hose, air-brake	ton	36.00 @ 37.00
regular	ton	21.00 @ 22.00
No. 1 red	lb.	.02⅛ @ .02¼
No. 2 red	lb.	.01⅝ @ .01¾
White, druggists' sundries	lb.	.03¼ @ .03⅜
Mechanical	lb.	.02 @ .02½
Tires		
Pneumatic Standard—		
Mixed auto tires with beads	ton	26.00 @ 27.00
Beadless	ton	35.00 @ 36.00
White auto tires with beads	ton	43.00 @ 44.00
Beadless	ton	53.00 @ 54.00
Mixed auto peelings	ton	36.00 @ 37.00
Solid—		
Mixed motor truck, clean	ton	36.00 @ 37.00

The following scrap rubber dealers are listed in our Buyers' Directory. For complete information see Index of Advertisers on Page 106.

Birkenstein, S., & Sons, Chicago, Illinois.
Chalfin, Joseph, & Co., Inc., New York, N. Y.
Cummings, Wm. H., & Sons, New York, N. Y.
Muehlstein, H., & Co., Inc., New York, N. Y.
Norton, M., & Co., Medford, Massachusetts.
Schnurmann, J., London, England.
Weber, Hermann, Hoboken, New Jersey.

Reclaimed Rubber

New York

The seasonal preinventory lull in demand for reclaim is less than usual. Reclaiming plants are operating to capacity and are shipping their production as fast as made. Within the past 2 to 3 weeks the tire, wire insulation and mechanical divisions have largely increased their orders for reclaim. The year 1926 witnessed the establishment of reclaims in the estimation of rubber technologists and manufacturers as never before, due to practical demonstrations of its economic value and dependable grades.

All of the standard grades quoted below remain unchanged from the prices given a month ago with the exception of dark gray tires which have advanced one cent and unwashed shoes which have declined ¼-cent.

New York Quotations

December 27, 1926

	Specific Gravity	Price Per Pound
Auto Tire		
Black	1.21	$0.09 @ $0.09½
Black, washed	1.18	.10¾ @ .11¼
Black selected tires	1.20	.10½ @ .11
Dark gray	1.35	.13 @ .14
Light gray	1.38	.14 @ .14½
White	1.40	.17 @ .17½
High Tensile Black		
Super-reclaim, No. 1	1.20	.19 @ .20
No. 2	1.20	.16 @ .17
Shoe		
Unwashed	1.60	.08½ @ .08¾
Washed	1.50	.11 @ .11½
Tube		
No. 1	1.00	.18¼ @ .20
No. 2	1.18	.15½ @ .16½
Miscellaneous		
High grade, red	1.35	.16 @ .17
Truck tire, heavy gravity	1.55	.08¾ @ .09
Truck tire, light gravity	1.40	.09¾ @ .10¼
Mechanical blends	1.60	.08 @ .09

IT HAS BEEN SAID THAT CHILE PURCHASES FROM 18,000 TO 20,000 fountain pens annually. The better classes of American goods have always been predominant in Chile, but several British manufacturers have recently entered the market and an increase in competition is anticipated.

INDIA'S IMPORTS OF AUTOMOBILE TIRES, ACCORDING TO THE Department of Commerce, include for the first half of 1926 a value of 36 per cent from Great Britain, 16 per cent from the United States, the remainder being shared by France, Germany, and Canada.

The following reclaimed rubber dealers are listed in our Buyers' Directory. For complete information see Index of Advertisers on Page 106.

Bloomingdale Rubber Co., New York, N. Y.
Central Rubber Reclaiming Co., Findlay, Ohio.
Clapp, E. H., Rubber Co., Boston, Massachusetts.
Defiance Rubber Co., Defiance, Ohio.
Manhattan Rubber Manufacturing Co., Passaic, New Jersey.
Nearpara Rubber Co., Trenton, New Jersey.
New Jersey Rubber Co., Lambertville, New Jersey.
Pequanoc Rubber Co., Butler, New Jersey.
Philadelphia Rubber Works, Philadelphia, Pennsylvania.
Rubber Regenerating Co., Naugatuck, Connecticut.
Somerset Rubber Reclaiming Works, New Brunswick, New Jersey.
U. S. Rubber Reclaiming Co., Inc., New York, N. Y.
Vulcan Recovery Co., Trenton, New Jersey.
Xylos Rubber Co., Akron, Ohio.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

NUMBER	INQUIRY
903	Manufacturers of cutters for rubber bands.
904	Sports' ball measuring 4½ meters in diameter.
905	Flexible rubber poker chips in colors.
906	Method of obtaining tackiness in tire repair gums.
907	Manufacturers of molds for sponge rubber tubing.
908	Manufacturers of billiard and pool cushions.

Foreign Trade Information

For further information concerning the inquiries listed below, address United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Room 734, Custom House, New York, N. Y.

NUMBER	COUNTRY AND COMMODITY	PURCHASE OR AGENCY
23,016	Salvador. Rubber sundries, specialties, and toys	Purchase and agency
23,112	Persia. Automobile tires	Purchase and agency
23,114	England. Vulcanizing and retreading machines	Agency
23,169	India. Balls, especially tennis balls	Sole agency
23,182	Egypt. Garters, elastic ribbon, and suspenders	Purchase and agency
23,200	Brazil. Rubber goods	Agency
23,261	Germany. Automobile, motorcycle, and bicycle tires	Agency
23,288	Austria. Automobile tires	Agency
23,332	Austria. Dental rubber supplies	Purchase and agency

Foreign Trade Circulars

Special circulars containing foreign rubber trade information are now being published by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. The publications which give details of the rubber industry in some one country are marked with an asterisk.

NUMBER	SPECIAL CIRCULAR
1329	"Tire Exporters' Weekly News Letter."
*1332	"October Imports of Rubber Tires Into the United States."
*1334	"Crude Rubber Reexports from the United States, Month of October, 1926."
*1335	"Michelin Announces New Tire, Rim and Wheel."
1336	"Tire Exporters' Weekly News Letter."
*1337	"Canadian Tire Exports During October, 1926."
1339	"Mechanical Rubber Goods Exporters' Monthly News Letter."
*1342	"Rubber and Balata Crop and Exports From Manáos, Brazil, 1925-1926."
1343	"Tire Exporters' Weekly News Letter."
1346	"Tire Exporters' Weekly News Letter."
1348	"Rubber Footwear Exporters' Monthly News Letter."
*1349	"British Exports of Automobile Casings During October, 1926."
*1350	"British Exports of Rubber Footwear During October, 1926."
1351	"Rubber Specialties Weekly News Letter."
1352	"Crude Rubber News Letter."
1353	"Tire Exporters' Weekly News Letter."
*1360	"Constantinople Tire Market at End of October, 1926."

ANDREW H. BROWN RETIRES FROM BUSINESS

Andrew H. Brown, who since 1912 has been associated with Otto Meyer in the crude rubber business, has retired from trade, the company with which he has been connected being also reorganized under the name of the Meyer & Brown Corporation.

In 1893 Mr. Brown began his duties as assistant to the purchasing agent of the Boston Rubber Shoe Co., being appointed purchasing agent when in 1903 the organization was taken over by the United States Rubber Co. When the General Rubber Co. was formed in 1904 Mr. Brown became assistant treasurer, holding that position until 1908 when he joined the New York firm of crude rubber importers known as Albert T. Morse & Co. In 1912 with Otto Meyer he organized the partnership of Meyer & Brown.

Mr. Brown retires from active business with the good will and best wishes of his many friends in the rubber industry. On the evening of December 27 a dinner was given in his honor at the Hotel Commodore, New York, N. Y., many of his former business associates and employes being present.

Metal Market Review

New York

Quietness has during the last few weeks pervaded all the metal markets, steel not excepted, notwithstanding the recent flurry caused by the United States Steel Co.'s large dividend announcements. Steel ingot production of all American companies was estimated at 3,722,119 tons for November, a decrease of 370,429 tons as compared with the previous month, while December will probably represent a still further falling-off.

ALUMINUM. Little change is noted in the aluminum situation, although the low levels in copper are said to be acting as a brake on aluminum prices. Strong competition abroad is apparently having no effect on the American market.

ANTIMONY. Conditions are very dull, with New York figures for futures being quoted below the Chinese prices.

COPPER. There was active buying of copper during the middle of December, the market since then being very quiet. According to estimates of the American Bureau of Metal Statistics, the world's copper production during the first eleven months of 1926 totaled 1,504,400 short tons. American consumption of this metal for 1926 has been record-breaking, about 10 per cent greater than that of last year.

LEAD. There is only a moderate demand for this metal, and the market continues quiet and featureless. Conditions for the year in the lead industry are considered satisfactory, although the price has declined from 9.25 cents, New York, at the beginning of 1926 to 7.80 cents at its close.

STEEL. Statistics show that steel ingot production during the first eleven months of 1926 totaled 43,661,517 tons, against 40,169,820 tons for the corresponding period of 1925. *The Iron Age* states that a 70 per cent operation in December would bring the year's total close to 47,000,000 tons, or 6 to 7 per cent more than the record output of 1925.

TIN. During the last of December tin prices sank to the lowest levels for several months, spot Straits tin selling at 67½ cents a pound. The market is however undeniably high by comparison with other years and other metals.

ZINC. Sales have been unusually large during the last few months although the market continues quiet. The price of zinc for the last days of December was 7 cents a pound, East St. Louis, as against 8.40 cents for the peak of the year and 6.70 cents as the low point.

Basic Metals

December 23, 1926

	Cents per pound	
Aluminum, virgin, 98@99 per cent	27.00 @	
Antimony	12.50 @	12.75
Copper—Lake, spot	13.75 @	
Electrolytic, spot	13.55 @	13.625
Castings, refinery	13.20 @	
Lead, spot, New York	7.80 @	7.85
Lead, spot, East St. Louis	7.65 @	7.70
Nickel, ingot, pound	35.00 @	
Tin, spot	67.75 @	
Zinc, spot, New York	7.37½ @	
Zinc, spot, East St. Louis	7.025 @	7.05

Steel Wire

	Base per 100 lbs.
Bright, plain wire No. 9 gage	$2.50 @
Annealed fence wire	2.65 @
Galvanized wire No. 9	3.10 @
Spring wire	3.50 @

Copper Wire

BASE PRICE F. O. B. FACTORY

	Cents per pound
Bare copper wire	15.625 @
No. 6. B. & S. gage	15.625 @
No. 8 B. & S. gage	15.625 @
No. 14 B. & S.	16.625 @

THE FOLLOWING AMERICAN RUBBER PRODUCTS WILL BE EXHIBITED at the Prague (Czechoslovakia) Fair, March 20 to 27, 1927: Miller bathing caps and slippers, Fisk and Goodyear tires.

The Market for Compounding Ingredients

New York

THE decrease of shipments of compounding ingredients due to the preinventory season has not been sufficient to affect sales in any important degree. Price cutting in some lines still continues as for example in certain accelerators and particularly in clays, the lower grades of which are being sold virtually without profit. These grades find their outlet in severely competitive rubber products where quality is sacrificed to cost.

ACCELERATORS. The trade in accelerators is active in all types. Practically all of the larger manufacturers are offering accelerators of the ultra rapid type. The many accelerators now in the market are of three general groups as to speed and in each division the compounder has choice of several.

ANTI-OXIDANTS. These important ingredients are now employed to increase the life of rubber goods in every line. In fact they are now as indispensable in modern rubber working as accelerators.

BENZOL. Supplies are in large volume. The demand is seasonally less and prices unchanged.

CARBON BLACK. Standard rubber grades are being contracted in fair amounts for 1927 needs. Prices are steady for spot and the demand good. Quotations have not changed during the past month.

CLAY. The higher grades have not been as seriously cut in price as the lower ones. Contracts for 1927 supplies for the rubber industry are being rapidly placed in heavy tonnages.

LITHARGE. The demand is reported rather inactive with consumers expecting an early reduction in prices. In this they were not disappointed late in December.

LITHOPONE. The last of November there was a reduction of ¼-cent a pound and quotations were withdrawn. Since then the price has been steady.

MINERAL RUBBER. Trade in this important material is heavy. No rubber company is without dependence upon mineral rubber even in quality goods.

SOLVENT NAPHTHA. Within the month the price has been reduced ¾-cents a gallon. Business has been moderate and supplies ample.

ZINC OXIDE. Twice in the month prices were cut on all grades except 1-5 per cent leaded. Buyers were deferred their next year's contracts and later were granted fractionally lower prices which improved the demand.

New York Quotations

December 27, 1926

Accelerators, Inorganic

Lead, carbonate	lb.	$0.09¼	@
Lead, red	lb.	.11¼	@
sublimed white	lb.	.09	@
sublimed blue	lb.	.09	@
super-sublimed white lead	lb.	.09½	@
Lime, R. M. hydrated	ton	15.00	@25.00
Litharge	lb.	.10¾	@
Magnesia cal., light (bbls.)	lb.	.15	@
calcined, md. light (bbls.)	lb.		@
calcined, extra light (bbls.)	lb.		@
calcined, heavy (bbls.)	lb.	.04	@ .04¼
magnesium, carb., light		.08¾	@
Orange mineral A.A.A	lb.	.13½	@
Rubber lead No. 4	lb.		@

Accelerators, Organic

Aldehyde ammonia	lb.	.82	@
Aniline (drums)	lb.	.16½	@ .17
B. B	lb.	1.05	@ 1.07
Captax	lb.	1.20	@ 1.50
Di-ortho-tolylguanidine	lb.	1.05	@ 1.08
Diphenyl guanidine	lb.	.85	@ .93
Ethylidine aniline	lb.	.65	@
Excellerex	lb.		@
Formaldehyde aniline	lb.	.42½	@
Furac 1, 2 and 3	lb.		@
Grasselerator 102	lb.	.80	@ .85
552	lb.	4.80	@ 5.00
808	lb.	1.25	@ 1.50
Heptene	lb.	.55	@
Hexamethylene tetramine	lb.	.80	@ .85
Hydrofuramide	lb.		@
Methylene aniline	lb.		@
Methylene dianiline	lb.	.40	@
Monex	lb.	3.25	@
No. 999 lead oleate	lb.	.16½	@ .18
Piperidine penta-dithio-carb.	lb.	5.00	@
R. & H. 50 (100 lb. drums)		.60	@
Super-sulphur, No. 1	lb.	.50	@
No. 2	lb.	.18	@ .25
Tensilac No. 39	lb.	.65	@
No. 41	lb.	.65	@
Thionex	lb.	3.25	@
Thiocarbanilid	lb.	.22	@ .28
Trimene	lb.	.75	@
base	lb.	1.20	@
Triphenylguanidine	lb.	.69	@ .72
Tuads	lb.	3.25	@
Vulcanex		.86	@
Vulcanol	lb.	1.08	@
Vulcone	lb.	.74	@
W-29	lb.	1.65	@
W-87	lb.		@
Zimate	lb.	4.00	@

Acids

Acetic 28% (bbls.)	100 lbs.	$3.63	@
glacial (carboys)	100 lbs.	12.66	@
Oleic	lb.	.09½	@ .09¾
Stearic	lb.	.14	@
Sulphuric, 66%	100 lbs.	1.60	@

Alkalies

Caustic soda	100 lbs.	3.50	@
Sulphite soda	100 lbs.	3.50	@

Anti-Oxidants

Age-Rite	lb.	.85	@ .90
Antox	lb.	.88	@
V. G. B	lb.	.66	@

Colors

BLACK

Bone	lb.	.05½	@ .19
Carbon (see Comp. Ing.)			
A. & W. nonfli No. 1	lb.	.40	@
No. 2	lb.	.25	@
Drop	lb.	.07½	@ .15
Lampblack	lb.	.10	@ .40

BLUE

A. & W. blue	lb.	1.25	@ 5.00
Du Pont, N	100 lbs.	1.35	@
Marine, A. C	100 lbs.	1.30	@
5 R	lb.		@
2 G	lb.		@
Prussian	lb.	.33	@ .35
Ultramarine	lb.	.15	@

BROWN

Sienna, Italian	lb.	.05	@
Umber, Turkey	lb.	.03½	@

GREEN

A. & W. green	lb.	1.25	@ 3.00
Chrome, light	lb.	.27	@ .31
medium	lb.	.29	@ .32
dark	lb.	.31	@ .34
Du Pont, A. C	lb.		@
4 G	lb.		@
G. L	100 lbs.	.30	@
Y. L	100 lbs.	.75	@
Oxide of chromium	lb.	.32	@ .38

ORANGE

Du Pont, 2 R	lb.	1.40	@
R. O	100 lbs.	1.35	@
R. X	100 lbs.	1.30	@
Y. O	100 lbs.	1.60	@
Y. X	100 lbs.	1.15	@

RED

A. & W. red	lb.	.75	@ 3.50
purple	lb.	2.00	@ 4.00
Antimony, golden	lb.	.19	@ .22
golden 15/17%	lb.	.20	@
T. K. "Special" 1%	lb.	.38	@
Pentasulphide 15/17%	lb.	.18	@

Colors—*(Continued)*

RED—*(Continued)*

Antimony, crimson, R.M.P. No. 3	lb.	$0.48	@
T. K. 15/17%	lb.	.40	@
Sulphur free	lb.	.50	@ .55
7-A	lb	.37	@
Z-2	lb	.20	@
Sulphuret vermilion	lb.	.37½	@
Du Pont R. I.	100 lbs.	2.00	@
6 B	lb.		@
4 B. L	lb.		@
R. S.	100 lbs.	1.45	@
Brilliant A. C.	100 lbs.	1.20	@
Iron Oxides			
bright red pure domestic	lb.	.12	@
bright red pure English	lb.	.14	@
bright red red. English	lb.	.10	@ .12
bright red red. domestic	lb.	.10	@
Indian (maroon), red pure domestic	lb.	.11	@
Indian (maroon), red pure English	lb.	.11	@ .13
Indian (maroon), red reduced English	lb.	.08	@ .10
Indian (maroon), red reduced domestic	lb.	.08	@
Oximony	lb.		@
Spanish red oxide	lb.	.03	@ .04
Venetian reds	lb.	.02½	@ .06
Vermilion, English quicksilver	lb.	1.55	@ 1.65

WHITE

Albalith	lb.*		@
Lithopone	lb.	.05½	@
Azolith	lb.		@
Grasselli	lb.	.05¾	@ .05¾
Sterling	lb.	.05¾	@ .06¼
Zinc Oxide			
AAA (lead free)	lb.	.07¼	@ .07¾
Azo (factory):			
ZZZ (lead free)	lb.	.07¼	@ .07¾
ZZ (5% leaded)	lb.		@
Z (8% leaded)	lb		@
French Process			
Green seal	lb.	.10¾	@
Red seal	lb.	.09¾	@
White seal	lb.	.11¾	@
Horse Head Brands			
Selected	lb.*		@
Special	lb.*		@
XX red	lb.*		@
Palmerton Process			
Kadox, black	lb.*		@
blue	lb.*		@
red	lb.*		@

Colors—*(Continued)*

WHITE—Continued

Leaded Brands			
Lehigh	lb.*	@	
Standard	lb.*	@	
Sterling	lb.*	@	
Superior	lb.*	@	

* Prices on application.

YELLOW

A. & W. yellow	lb.	$2.00	@$4.00
Arsenic	lb.		@
T. K. Sulphide	lb.	.65	@
Cadmium sulphide	lb.	1.50	@
Chrome	lb.	.17	@ .18
Du Pont N.	100 lbs.	4.00	@
R. R.	lb.		@
Grasselli cadmium	lb.	1.50	@
Ochre, domestic	lb.	.01¼	@ .02
imported	lb.	.04½	@ .04½
Oxide, pure	lb.	.08	@ .12
Zinc imp.	lb.	.24	@

Compounding Ingredients

Aluminum flake (sacks c.l.)	ton	21.85	@
(sacks l.c.l.)	ton	24.50	@
Filler	ton		@
Silicate	ton		@
Ammonia carbonate	lb.	.14½	@ .17½
Asbestine	ton	13.50	@25.00
Barium, carbonate	ton		@
dust	lb.	.05	@ .06
sulphate	lb.	.04	@
Barytes, imported	ton	30.00	@
water ground and floated	ton	23.00	@25.00
Basofor	lb.		@
Blanc fixe, dry	ton	85.00	@87.50
pulp	ton	65.00	@67.50
Carbon Black			
Aerfloted arrow	lb.	.09	@ .13
Compressed	lb.	.07½	@ .11½
Uncompressed	lb.	.07	@ .11
Micronex	lb.	.08	@ .12
Carrara filler	lb.		@
Chalk	ton	18.00	@20.00
Clay, blue rib. (c. l. fety.)	ton		
Blue Ridge, dark	ton	9.00	@
light	ton	12.00	@
China	lb.	.01¾	@ .02½
Dixie	ton	15.00	@
Langford	ton	12.00	@
Mineral Flour (Florida)	ton	20.00	@23.00
Perfection	ton	16.00	@27.00
Suprex	ton	13.00	@26.00
Cotton flock, black	lb.	.11	@
light-colored	lb.	.11	@ .12
white	lb.	.12½	@ .30
Fossil flour	lb.	.02½	@ .03
Glue, high grade	lb.	.16	@ .23
medium	lb.	.16	@ .17
low grade	lb.	.13	@ .14
Infusorial earth	lb.	.02½	@ .03
Mica, amber (fact'y)	lb.	.05	@
Pumice stone, powd.	lb.	.02½	@ .04

New York Quotations

December 27, 1926

Compounding Ingredients—*(Continued)*

Rotten stone (bbls.)	lb.	$0.02½	@$0.04½
Slate flour (fact'y c. l.)	ton		@
Soap bark	lb.	.12	@
Soapstone	ton	12.00	@25.00
Sodium bicarb.	100 lbs.	3.00	@
Starch, powd. corn			
Buffalo (bbls.)	100 lbs.	3.49	@ 3.59
Buffalo (bags)	100 lbs.	3.22	@ 3.32
Stearex A	lb.	.12	@ .14
B	lb.	.11	@ .13
Talc, domestic	ton	16.00	@18.00
French	ton	35.00	@
Terre blanche	ton		@
Thermatomic carbon	lb.	.05	@
Whiting:			
Commercial	100 lbs.	.85	@ 1.00
English, cliffstone	100 lbs.	1.50	@
Quaker	ton	13.00	@
Snow white	ton		@
Sussex	ton	8.00	@
Westminster Brand	100 lbs.		@
Witco (c.l.) (fact'y)	ton	12.00	@20.00
Whiting, imp. chalk	100 lbs.	1.00	@ 1.10
Paris White, Eng. Cliffstone,	100 lbs.	1.50	@ 2.50
Wood flour	ton	40.00	@
XXX (fact'y)	ton	35.00	@
X (fact'y)	ton	25.00	@

Mineral Rubber

Genasco (facty.)	ton	50.00	@52.00
Gilsonite (fact'y)	ton	58.00	@
Granulated M. R.	ton	33.00	@38.00
Hydrocarbon, hard	ton	28.00	@34.00
Hydrocarbon, soft	ton	28.00	@34.00
Ohmlac Kapak, M-R	ton		@
K-4	ton		@
320/340 m. p. hydrocarbon	ton	47.00	@52.00
300/310 m. p. hydrocarbon	ton	42.00	@47.00
Paradura (fact'y)	ton	62.50	@65.00
Pioneer, M. R., solid (fac.)	ton	42.00	@44.00
M. R. granulated	ton	52.00	@54.00
Robertson, M. R. solid (facty.)	ton	34.00	@80.00
M. R. gran. (facty.)	ton	40.00	@80.00

Oils (Softeners)

Castor, No. 1, U. S. P.	lb.	.13	@
No. 3, U. S. P.	lb.	.12¾	@
Corn, crude (bbls.)	lb.	.09½	@
Cotton	lb.	.08	@ .08½
Fluxrite fluid	lb.		@
solid	lb.		@
Glycerine	lb.	.32	@
Linseed, raw	lb.	.11	@
Liquid flux	lb.	.09	@ .12
Palm lagus	lb.	.08¼	@
niger	lb.	.08½	@
Peanut, crude	lb.	.11½	@
refined	lb.	.14	@
Petrolatum, standard	lb.	.06	@ .08
sticky	lb.	.08	@ .10
Petroline	lb.	.03	@ .04
Pine, steam distilled	gal.	.72	@
Plastone	lb	.39	@
Rapeseed, refined	lb.	.85	@
Rosin	gal.	.85	@
Synthecite	lb.	.05	@ .06
Tar	gal.	.55	@
Virol	lb.	.07	@ .08

Resins and Pitches

Pitch			
Coal tar	bbl.		@
Pine tar, retort	bbl.	$18.00	@
Ponto	lb.		@
Rosin, K (bbl.)	280 lbs.	15.00	@
strained (bbl.)	280 lbs.	13.00	@
Shellac, fine orange	lb.	.70	@
Tar, kiln	bbl.	18.50	@

Solvents

Benzol (90%, 7.21 lbs. gal.) pure	gal.	.32	@
Carbon bisulphide (10.81 lbs. gal.) 99.9% pure (drums)	lb.	.06	@ .07
tetrachloride (13.28 lbs. gal.) 99.7% pure (drums)	lb.	.06¾	@ .07¼
Gasoline			
No. 303			
Tankcars	gal.		@
Drums, c. l.	gal.		@
Drums, l. c. l.	gal.		@
Naphtha			
68° Bé., 112°, 324°	gal.	.20	@
70° Bé., 114°, 314°	gal.	.20½	@
71° Bé., 112°, 304°	gal.	.21	@
Turpentine, spirits	gal.	.95	@
wood, steam distilled	gal.	.86	@

Substitutes

Black	lb.	.08	@ .14
Brown	lb.	.08	@ .15
White	lb.	.09	@ .16½

Vulcanizing Ingredients

Sulphur			
refined velvet (c.l.)	100 lbs.		@
(l.c.l.)	100 lbs.		@
Soft rubber (c.l.)	100 lbs.	2.60	@ 2.95
(l.c.l.)	100 lbs.	2.95	@ 3.30
Superfine flour (c.l.)	100 lbs.		@
(l.c.l.)	100 lbs.		@
Tire brand, superfine	100 lbs.	2.20	@ 2.55
Tube brand, velvet	100 lbs.	2.60	@ 2.95

(See also Colors—Antimony)

Waxes

Wax, beeswax, white, com.	lb.	.55	@
carnauba	lb.	.38	@ .80
ceresine white	lb.	.13	@
montan	lb.	.07	@ .08
ozokerite, black	lb.	.30	@
green	lb.	.32	@
Paraffin			
122/124 white crude scale	lb.	.04¾	@ .05
124/126 white crude scale	lb.	.04⅞	@
123/125 fully refined	lb.	.05¼	@ .05⅜
125/127 fully refined	lb.	.05⅞	@ .06

VULCANIZER REPAIRED WITH PYROXYLIN

Attempts were made repeatedly to repair with red lead and boiled linseed oil a vulcanizer which had developed fissures at the works of the Joseph Stokes Rubber Co., Ltd., Welland, Ontario, but without success. The composition would always break down through the expansion and contraction of the vulcanizer between room temperature and 324 degrees F. A thick application of pyroxylin lacquer (Duco) was then tried, and the result was so satisfactory that such repair material was adopted as standard.

HIGHWAY EDUCATION BOARD ENLARGES SCOPE OF OPERATIONS

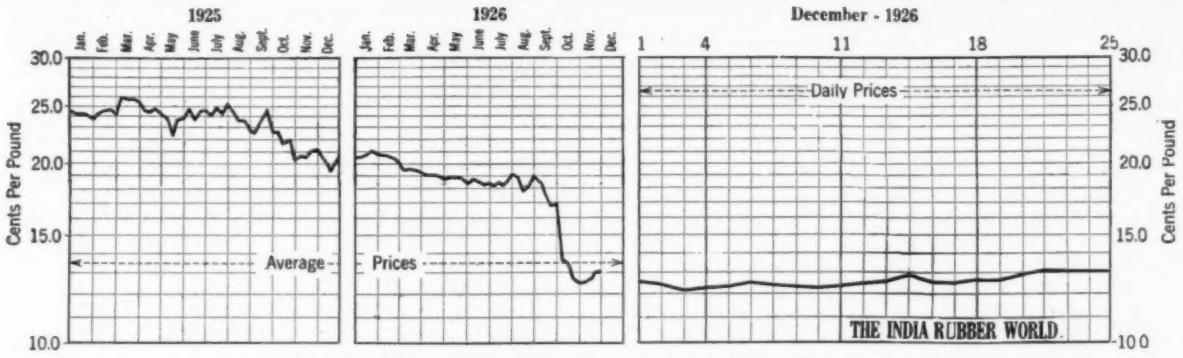
The Highway Education Board, Washington, D. C., has enlarged its personnel and broadened the scope of its operations. Among those at present connected with the organization who will also represent the rubber industry are the following: Harvey S. Firestone, president of Firestone Rubber Co., Akron, Ohio; and W. O. Rutherford, vice president of The B. F. Goodrich Co., Akron, Ohio.

Safety contests and the well-known Firestone essay contests in the interest of highway development will be continued as part of the activities under consideration, as well as various studies in connection with highway engineering and world highway economics. During the year 1927 all of the Board's activities will be carried forward on a broader scale, with additional functions planned.

HERMAN MUEHLSTEIN ASSISTING NATIONAL FARM SCHOOL

Herman Muehlstein, president of H. Muehlstein & Co., Inc., Madison avenue and 42nd street, New York, N. Y., dealer in crude and scrap rubber, is cooperating with the Business Men's Council in efforts to further develop the National Farm School and raise a $5,000,000 endowment fund within the next three years.

The project, endorsed by President Coolidge, Secretary of Commerce Hoover, and Secretary of Agriculture Jardine, includes the offering of a three-year course, free of charge, in scientific and practical agriculture at Doylestown, Pennsylvania, where the school buildings are attractively placed on 1,200 acres of land. Mr. Muehlstein, who is a Mason, was recently elected to the Board of the Sydenham Hospital.



Ratio Graph of New York Daily Prices of Spot Middling Upland Cotton

The Market for Cotton and Fabrics

New York

AMERICAN COTTON. The range of spot cotton quotations the past month was rather narrow. Between the first and the twenty-fifth low was 12.15 cents and high was 13.10 cents. The tendency, however, was upward. Despite the government crop report November 22 of 18,399,000 bales the market was steady early in the month and a slightly easier spot basis prevailed with good buying on the declines. The last government report for the season issued December 8 indicated the full crop at 18,618,000 bales. As a result spot declined to 11½ cents although otherwise the final figures were without appreciable market effect.

Some progress has been made in the campaign for the reduction of cotton acreage for next season's planting. Returns indicate a decrease of about 27 per cent from the area used in 1926. It is understood that enactment of legislation to place the contract of the New Orleans Cotton Exchange on a parity with those of New York and Chicago will be urged in Congress when it reconvenes after the holidays.

EGYPTIAN COTTON. The two earlier attempts of the Egyptian Government to control the price of cotton having failed the current outstanding feature of the staple market is the recently announced policy of the Government to buy December and February Uppers contracts at 15.50 and January Sakel contracts at 25.50. Contracts thus bought will be held for delivery of cotton. These prices are 145 points below the present level of Sakels and 110 points below today's prices of Uppers.

ARIZONA COTTON. The Arizona crop is moving fast into consumption. Recent rains have delayed picking and may have considerable effect on the grade of the cotton remaining in the fields.

Cotton Fabrics

DUCKS, DRILLS AND OSNABURGS. The outstanding feature of the December market on these goods was the insistent demand for spot deliveries on specialty fabrics the need for which was hastened by seasonable weather. If cotton prices settle to a firm basis, activity of fabric markets will be assured. While the duck market was quiet it is expected to become very active after the first of the year.

RAINCOAT FABRICS: Rubberizers' lines for 1927 are in preparation and good business in raincoat fabrics is expected soon after January first.

SHEETING. Sales of sheetings in December were not heavy but continued steadily in fair volume. After the middle of the month inquiries increased and a few orders were placed for the first quarter of the new year. The month closed with business very quiet during the holiday season.

TIRE FABRICS. The month in tire fabrics ruled rather quiet. Inquiries progressed in interest as the month advanced. Some fabric orders were placed at prices quoted a month ago. The business was small in volume at competitive figures. About the middle of the month large business began to shape up with tire companies interested in covering January-June needs and quotations were firm. Contracts amounting to 500,000 pounds were placed and others are pending. There was the usual holiday lull in the demand.

New York Quotations

December 27, 1926

Drills

38-inch 2.00-yard	*yard*	$0.14¾ @
40-inch 3.47-yard		.08½ @
52-inch 1.90-yard		.16⅛ @
60-inch 1.52-yard		.20⅛ @

Ducks

38-inch 2.00-yard	*yard*	.15 @
40-inch 1.47-yard		.20¾ @
72-inch 16.66-ounce		.35⅜ @
72-inch 17.21-ounce		.36⅝ @
MECHANICAL		
Hose and belting	*pound*	.28 @
Specials		.32 @
TENNIS		
52-inch 1.35-yard	*yard*	.22½ @

Hollands

DEAD FINISH		
Standard, 36-inch	*yard*	.17 @
42-inch		.21 @
FLAT FINISH		
Imperial, 36-inch		.13½ @
40-inch		.15½ @
RED SEAL		
36-inch		.14½ @
40-inch		.15½ @
50-inch		.23 @
GOLD SEAL		
40-inch, No. 72		.19½ @
40-inch, No. 80		.20½ @

Osnaburgs

40-inch 2.35-yard	*yard*	$0.12⅝ @
40-inch 2.48-yard		.11⅞ @
40-inch 3.00-yard		.09⅞ @
37-inch 2.42-yard		.12⅛ @

Raincoat Fabrics

COTTON		
Bombazine 60 x 64	*yard*	.11 @
Bombazine 60x48		.10 @
Plaids 60 x 48		.11 @
Plaids 48 x 48		.10 @
Surface prints 60 x 48		.11½ @
Surface prints 64 x 60		.12½ @

Sheetings, 40-inch

48 x 48, 2.50-yard	*yard*	.10¾ @
48 x 48, 2.85-yard		.09½ @
64 x 68, 3.15-yard		.10½ @
56 x 60, 3.60-yard		.08¾ @
48 x 44 3.75-yard		.07⅝ @

Sheetings, 36-inch

48 x 48, 5.00-yard	*yard*	.06⅛ @
44 x 40, 6.15-yard		.04⅞ @

Tire Fabrics

SQUARE WOVEN 17¼-ounce		
Egyptian, karded	*pound*	@
Peeler, karded		$0.36½ @
CORD 23/5/3		
Egyptian, combed	*pound*	@
Egyptian, karded		@
Peeler karded, 1 1/16-in.		.35 @
CORD 23/4/3		
Peeler, karded	*pound*	.36 @
CORD 23/3/3		
Peeler, karded	*pound*	.44 @
CORD 15/3/3		
Peeler, karded	*pound*	.33 @
CORD 13/3/3		
Peeler, karded	*pound*	.32 @
LENO BREAKER		
8-oz. Peeler, karded	*pound*	.36½ @
10-oz. Peeler, karded		.36½ @
CHAFER		
8.25-oz. Peeler, karded (2 ply)	*pound*	@
9.5-oz. Peeler, karded (4-ply)		.49 @
12-oz. Peeler, karded		.38¼ @
14-oz. Peeler, karded		.36½ @

The Cotton Outlook

THE 1926 cotton crop is the largest ever raised in this country, according to estimates as of December 1 made by the Department of Agriculture and representing the final report of the season. The government figure of 18,618,000 bales of 500 pounds gross weight was, however, rather smaller than expected, the Fairchild estimate being 19,223,000 bales. *The New York Times*, stating that with the carryover from last season the amount of cotton available to meet world requirements will total 25,000,000 bales, adds further: "Even should consumption reach the highest estimates of 16,500,000 bales, the carryover at the end of the season would be in the neighborhood of 9,000,000 bales, or as large as it was in 1921." The revised estimate of United States cotton area for 1926 is 47,653,000 acres, compared with 46,053,000 in 1925, and 37,616,000 acres as the five-year average for 1921-1925.

Government Measures Under Consideration

Meanwhile it is being thought by many that the condition of the cotton farmer is greatly exaggerated, and that unnecessary sympathy is being bestowed upon him. Domestic consumption of cotton is increasing, while statistics compiled by the Department of Commerce show that exports from August 1 to December 17 amounted to 4,942,855 bales, compared with 4,329,603 bales for the corresponding period last season. Congress is, however, considering various bills planned to meet the present unfavorable conditions in the industry, one of these measures being designated as "the Jones bill, 1926, to increase the price of cotton." According to the *Journal of Commerce:*

Under the Jones bill proper, the Secretary of Agriculture will be directed to issue only four reports instead of nine, as of the first of September, October, November and December, respectively, giving the probable number of bales which will be ginned, these reports to be issued simultaneously with the cotton ginning reports of the Bureau of the Census relating to the same dates.

The Secretary also would be called upon for a report on or before July 10 of each year, showing by States and in toto the number of acres of cotton in cultivation on July 1, to be followed on September 1 and December 1 with an estimate of the acreage of cotton abandoned since July 1. From time to time, also, in so far as is practicable, the Secretary would cause to be issued the grades and qualities of the cotton in the warehouses and his estimates of the grades and qualities of that which is being produced.

At the same time the McNary farm relief bill, changed as to form, made its appearance in the House of Representatives, this being presented by Representative Hampton P. Fulmer of South Carolina. The measure, amended in the interests of the cotton farmers, was, however, opposed by Chairman Gilbert N. Haugen of the House Committee on Agriculture, who heretofore had joined with Senator McNary in sponsoring farm legislation, the former declaring that the proposed legislation represents merely a banking measure, and that it is also weak in many of its provisions.

The McNary bill proposes a Federal Farm Board of 12 men, one from each Federal Land Bank district, selected so as to function in the interest of agriculture as the Interstate Commerce Commission functions for the railroad interests. The South will have three members on this board representing cotton producers with equal power with those representing districts growing other major farm commodities.

In his annual report, made public December 9, Secretary of Agriculture Jardine said in part:

Developments of the last year have not been favorable to cotton growers. Two years ago supply and demand were balanced nicely and prices were satisfactory. Last year the final acreage harvested was increased 11 per cent over that of the year before and the season's crop exceeded the total consumption by a little more than two and a quarter million bales. This year the acreage in harvest is computed at an increase of 2.7 per cent over that finally harvested last year. There is little question, however, that present selling prices of cotton at the farm are less on the average than costs of production.

There is no way to improve the product except by furnishing cash encouragement for quality. Discrimination in buying is just as important as high prices. Upland long-staple cotton brings from 30 to 60 per cent more than middling short staples. Farmers who produce the long-staple kind should in simple justice be rewarded proportionately. It is useless from the standpoint of encouraging quality production merely to get manufacturers to pay more for good fiber. The premium for superior fiber must go back to the farmers. Community production of better cotton would go forward more rapidly if farmers were sure of better markets for good cotton than for short fiber. It is in the interest of the cotton trade to give them this assurance.

Egypt's Cotton Problems

There is some similarity in the present difficulties of the American and Egyptian cotton grower, while the same measures for relief have been under consideration in both countries. In Egypt the Chamber of Deputies has recently adopted the Cotton Limitation law, with its provisions for limiting the cotton acreage to one-third normal for three years, after deciding against a plan of making conditional advances of money to cotton growers. The Egyptian Government has, however, for the fifth successive year, entered the cotton market as a purchaser, and by June 12, 1926, the amount expended for the purpose of stabilizing prices had reached £E2,792,148, or about $13,542,000.

This governmental intervention has unfortunately been less successful than formerly. The present Sakel crop, according to reports received by the United States Department of Agriculture, is estimated at 616,000 bales of 478 pounds net against 728,000 bales last year, the yield of other varieties being placed at 881,000 bales as compared with the previous year's total of 901,000 bales.

United Kingdom Rubber Statistics

Imports

UNMANUFACTURED	October, 1926		Ten Months Ended October, 1926	
Crude rubber From—	Pounds	Value	Pounds	Value
Straits Settlements	11,958,400	£1,015,209	109,813,600	£11,719,036
Federated Malay States	5,930,100	500,885	50,554,900	5,224,500
British India	818,100	70,534	8,919,600	1,042,394
Ceylon and Dependencies	3,816,500	322,318	35,696,400	3,788,410
Other Dutch possessions in Indian Seas	1,714,200	137,409	15,378,000	1,574,139
Dutch East Indies (except other Dutch possessions in Indian Seas)	2,863,900	244,983	25,630,300	2,617,241
Other countries in East Indies and Pacific, not elsewhere specified	170,000	14,736	1,837,100	190,225
Brazil	591,000	45,703	7,941,000	855,505
Peru	.....	.....	102,000	8,576
South and Central America (except Brazil and Peru)	29,100	2,418	347,300	32,381
West Africa:				
French West Africa	.....	.....	1,377,000	120,963
Gold Coast	53,200	3,889	859,200	59,301
Other parts of West Africa	236,100	17,078	1,634,800	149,084
East Africa, Including Madagascar	156,000	12,957	1,338,200	130,913
Other countries	196,700	16,381	1,277,900	146,742
Totals	28,533,300	£2,404,500	262,707,300	£27,659,410
Waste and reclaimed rubber	518,700	£5,805	5,521,400	£91,946
Gutta percha and balata	604,300	77,314	6,763,800	871,886
Rubber substitutes	48,100	3,820	211,300	14,645
Totals	1,171,100	£86,939	12,496,500	£978,477
MANUFACTURED				
Boots and shoes....*doz. pairs*	46,118	£156,863	398,290	£977,796
Tires and tubes				
Pneumatic				
Outer covers	.....	291,689	.....	3,279,707
Inner tubes	.....	29,218	.....	505,292
Solid tires	.....	20,799	.....	257,217
Other rubber manufactures	.....	135,426	.....	1,342,994
Totals	.....	£633,995	.....	£6,363,006

Exports

UNMANUFACTURED				
Waste and reclaimed rubber	1,576,700	£19,725	18,331,200	£240,794
Rubber substitutes	46,700	1,507	782,800	18,932
Totals	1,623,400	£21,232	19,114,000	£259,726
MANUFACTURED				
Boots and shoes....*doz. pairs*	21,552	£40,252	194,886	£322,577
Tires and tubes				
Pneumatic				
Outer covers	.....	290,645	.....	2,780,862
Inner tubes	.....	67,679	.....	590,008
Solid tires	.....	37,426	.....	370,277
Other rubber manufactures	.....	244,665	.....	2,550,582
Totals	.....	£680,667	.....	£6,614,306

Exports—Colonial and Foreign

UNMANUFACTURED	October, 1926		Ten Months Ended October, 1926	
Crude rubber From—	Pounds	Value	Pounds	Value
Russia	1,310,800	£232,060	11,731,200	£2,120,226
Sweden, Norway and Denmark	256,200	30,045	1,906,600	243,537
Germany	2,872,500	235,443	12,870,900	1,348,571
Belgium	309,100	24,047	2,457,200	267,013
France	1,038,100	89,100	17,524,900	2,171,177
Spain	113,100	9,204	675,600	91,918
Italy	29,200	2,891	5,009,000	726,184
Other European countries	444,100	43,197	2,033,900	221,261
United States	3,926,600	324,129	48,718,300	6,380,208
Canada	44,800	3,965	301,700	46,541
Other countries	84,200	7,770	728,900	94,621
Totals	10,428,700	£1,001,851	103,958,200	£13,711,257
Waste and reclaimed rubber	2,900	82	189,700	5,290
Gutta percha and balata	136,600	19,972	404,100	57,359
Rubber substitutes	.....	.....	2,200	60
Totals	139,500	£20,054	596,000	£62,709
MANUFACTURED				
Boots and shoes...*doz. pairs*	1,437	£4,588	6,903	£20,036
Tires and tubes				
Pneumatic				
Outer covers	.....	71,337	.....	368,346
Inner tubes	.....	4,368	.....	51,091
Solid tires	.....	745	.....	12,505
Other rubber manufactures	.....	9,597	.....	67,616
Totals	.....	£90,635	.....	£519,594

Dominion of Canada Rubber Statistics

Imports of Crude and Manufactured Rubber

UNMANUFACTURED	September, 1926		Six Months Ended September, 1926	
Rubber, gutta percha, etc.	Pounds	Value	Pounds	Value
From United Kingdom	.....	.....	3,357	$1,571
United States	2,656,014	$1,184,605	18,110,726	8,906,753
Straits Settlements	341,805	129,638	1,508,208	694,601
Dutch East Indies	38,087	15,033	184,589	97,358
Other countries	.....	.....	11,200	15,600
Totals	3,035,906	$1,329,276	19,818,080	$9,715,883
Rubber, recovered	630,795	$80,159	3,640,703	$452,357
Rubber, powdered and rubber or gutta percha scrap	517,348	16,527	3,740,565	204,421
Balata	2,794	1,607	6,000	3,968
Rubber substitutes	74,352	12,180	384,512	45,473
Totals	1,225,289	$110,473	7,771,780	$706,219
PARTLY MANUFACTURED				
Hard rubber sheets and rods	8,979	$3,825	64,590	$35,405
Hard rubber tubes	.....	56	.....	3,219
Rubber thread not covered	10,020	16,523	55,864	93,622
Totals	18,999	$20,404	120,454	$132,246
MANUFACTURED				
Belting	.....	15,061	.....	131,745
Hose	.....	8,685	.....	91,177
Packing	.....	3,601	.....	24,107
Boots and shoes .....*pairs*	3,302	7,082	13,808	23,002
Clothing, including waterproofed	.....	14,571	.....	113,936
Gloves	.....	1,244	.....	10,899
Hot water bottles	.....	148	.....	6,835
Tires, solid .....*number*	32	2,014	417	22,676
Tires, pneumatic .....*number*	2,304	40,094	30,423	185,420
Tires, tubes .....*number*	1,852	4,242	9,539	22,697
Elastic, round or flat	.....	13,360	.....	92,868
Mats and matting	.....	5,965	.....	26,017
Cement	.....	10,409	.....	49,271
Golf balls .....*dozen*	2,447	10,616	32,754	133,311
Heels, rubber .....*pairs*	18,700	1,082	118,225	7,768
Other rubber manufactures	.....	92,085	.....	681,827
Totals	.....	$230,259	.....	$1,623,556
Totals, rubber imports	.....	$1,690,412	.....	$12,177,904

Exports of Domestic and Foreign Rubber Goods

	September, 1926		Six Months Ended September, 1926	
UNMANUFACTURED	Produce of Canada Value	Re-exports of Foreign Goods Value	Produce of Canada Value	Re-exports of Foreign Goods Value
Crude and waste rubber	$18,639	.....	$132,981	.....
Totals	$18,639	.....	$132,981	.....
MANUFACTURED				
Belting	$49,561	.....	$277,692	.....
Canvas shoes with rubber soles	446,659	.....	2,183,215	.....
Boots and shoes	328,557	.....	1,303,253	.....
Clothing, including waterproofed	1,540	.....	13,708	.....
Hose	24,122	.....	131,458	.....
Tires, casings	1,150,080	.....	6,969,293	.....
Inner tubes	165,332	.....	1,168,807	.....
Solid	26,612	.....	124,356	.....
Other rubber manufactures	46,350	$16,043	274,571	$77,469
Totals	$2,238,813	$16,043	$12,446,353	$77,469
Totals, rubber exports	$2,257,452	$16,043	$12,579,334	$77,469

Landings, Deliveries and Stocks in London and Liverpool as Returned by the Warehouses and Wharves During the Month of October, 1926

	Landed for October	Delivered for October	Stocks, October 31st		
LONDON	Tons	Tons	1926 Tons	1925 Tons	1924 Tons
Plantation	12,135	5,031	41,962	4,948	37,351
Other grades	7	48	113	33	104
LIVERPOOL					
Plantation	†374	†356	†1,468	†455	†3,123
Pará and Peruvian	258	221	390	295	140
Other grades	.....	.....	.....	19	150
Total Tons, London and Liverpool	12,774	5,656	43,933	5,750	40,868

†Official returns from the six recognized public warehouses.

Crude Rubber Arrivals at New York as Reported by Importers

Parás and Caucho

	Fine Cases	Medium Cases	Coarse Cases	Caucho Cases	Cametá Cases
NOVEMBER 13. By "Aidan," Brazil.					
H. A. Astlett & Co.	75	...	4	2	...
General Rubber Co.	375	2	154	60	...
NOVEMBER 19. By "Elmpark," Brazil.					
H. A. Astlett & Co.	15	...	7	...	...
Paul Bertuch & Co., Inc.	...	...	45	...	...
Littlejohn & Co., Inc.	73	...	45	...	...
Meyer & Brown, Inc.	pkgs. ...	...	...	31	...
Poel & Kelly, Inc.	...	...	54	...	...
NOVEMBER 30. By "Alban," Brazil.					
Paul Bertuch & Co., Inc.	647	...	20	73	...
General Rubber Co.	859	...	201	13	...
Littlejohn & Co., Inc.	204	34	124	31	...
Meyer & Brown, Inc.	pkgs. 51	...	...	...	...
Poel & Kelly, Inc.	186	...	117	...	...
DECEMBER 14. By "Sheridan," Brazil.					
H. A. Astlett & Co.	271	...	528	45	...
General Rubber Co.	301	...	221	120	...
Littlejohn & Co., Inc.	396	1	60	88	...
Meyer & Brown Inc.	428	...	185	279	...

Plantations

	Cases
NOVEMBER 13. By "Asia," Europe.	
H. A. Astlett & Co.	952
NOVEMBER 15. By "Bintang," Far East.	
H. A. Astlett & Co.	1,270
General Rubber Co.	3,560
Littlejohn & Co., Inc.	1,696
H. Muehlstein & Co., Inc.	432
Raw Products Co.	254
Charles T. Wilson Co., Inc.	694
NOVEMBER 15. By "Mahronda," Far East.	
H. A. Astlett & Co.	400
General Rubber Co.	1,581
Hood Rubber Co.	*63
NOVEMBER 15. By "Minnetonka," London.	
H. A. Astlett & Co.	140
Baird Rubber & Trading Co., Inc.	50
NOVEMBER 16. By "Cuba Maru," Far East.	
H. A. Astlett & Co.	402
Baird Rubber & Trading Co., Inc.	1048
General Rubber Co.	2,859
Littlejohn & Co., Inc.	3,125
Meyer & Brown, Inc.	2,758
Poel & Kelly, Inc.	101
Raw Products Co.	140
Rogers Brown & Crocker Bros., Inc.	420
Charles T. Wilson Co., Inc.	1,341
NOVEMBER 18. By "Pres. Garfield," Far East.	
H. A. Astlett & Co.	650
Baird Rubber & Trading Co., Inc.	1,075
Paul Bertuch & Co., Inc.	85
General Rubber Co.	2,940
Haldane Bierrie & Co., Inc.	450
Hood Rubber Co.	*63
Littlejohn & Co., Inc.	2,090
Meyer & Brown, Inc.	1,030
H. Muehlstein & Co., Inc.	980
Poel & Kelly, Inc.	90
Raw Products Co.	770
Charles T. Wilson Co., Inc.	816
NOVEMBER 19. By "Kosmo," Far East.	
H. A. Astlett & Co.	997
General Rubber Co.	2,700
Haldane Bierrie & Co., Inc.	1,220
Hood Rubber Co.	*189
Littlejohn & Co., Inc.	1,001
Meyer & Brown, Inc.	381
Poel & Kelly, Inc.	385
Raw Products Co.	404
NOVEMBER 20. By "City of Bristol," Far East.	
Baird Rubber & Trading Co., Inc.	329
General Rubber Co.	130
Littlejohn & Co., Inc.	1,240
Poel & Kelly, Inc.	75
NOVEMBER 20. By "Sarcoxie," Havre.	
Littlejohn & Co., Inc.	357
NOVEMBER 21. By "Adriatic," London.	
Baird Rubber & Trading Co., Inc.	234
NOVEMBER 22. By "Anaconda," Rotterdam.	
General Rubber Co.	775
NOVEMBER 22. By "Samaria," Far East.	
Hood Rubber Co.	*20
Charles T. Wilson Co., Inc.	8
NOVEMBER 22. By "Silverlarch," Far East.	
H. A. Astlett & Co.	1,518
Baird Rubber & Trading Co., Inc.	329
Paul Bertuch & Co., Inc.	167
General Rubber Co.	6,100
Haldane Bierrie & Co., Inc.	370
Littlejohn & Co., Inc.	3,406
Meyer & Brown, Inc.	1,307
H. Muehlstein & Co., Inc.	108
Poel & Kelly, Inc.	955
Raw Products Co.	66
Rogers Brown & Crocker Bros., Inc.	900
Charles T. Wilson Co., Inc.	390
NOVEMBER 22. By "Steel Seafarer," Far East.	
H. A. Astlett & Co.	1,104
Baird Rubber & Trading Co., Inc.	45
General Rubber Co.	4,727
Littlejohn & Co., Inc.	2,308
Meyer & Brown, Inc.	1,400
Poel & Kelly, Inc.	185
Charles T. Wilson Co., Inc.	707
NOVEMBER 23. By "Noordam," Rotterdam.	
General Rubber Co.	100
NOVEMBER 25. By "American Merchant," London.	
Baird Rubber & Trading Co., Inc.	466
General Rubber Co.	300
Littlejohn & Co., Inc.	166
Poel & Kelly, Inc.	285
Charles T. Wilson Co., Inc.	162
NOVEMBER 25. By "City of Evansville," Far East.	
H. A. Astlett & Co.	812
Baird Rubber & Trading Co., Inc.	2,228
General Rubber Co.	2,465
Haldane Bierrie & Co., Inc.	70
Littlejohn & Co., Inc.	3,564
Meyer & Brown, Inc.	1,021
H. Muehlstein & Co., Inc.	60
Poel & Kelly, Inc.	1,155
Raw Products Co.	408
Rogers Brown & Crocker Bros., Inc.	220
Charles T. Wilson Co., Inc.	532
NOVEMBER 27. By "Margaret Dollar," Far East.	
Poel & Kelly, Inc.	†540
NOVEMBER 29. By "American Farmer," London.	
Littlejohn & Co., Inc.	30
NOVEMBER 29. By "Ansonia," London.	
General Rubber Co.	50
Poel & Kelly, Inc.	95
NOVEMBER 29. By "Minnewaska," London.	
H. A. Astlett & Co.	191
Baird Rubber & Trading Co., Inc.	183
General Rubber Co.	386
Littlejohn & Co., Inc.	112
Raw Products Co.	134
Charles T. Wilson Co., Inc.	508
NOVEMBER 30. By "Cedric," London.	
Baird Rubber & Trading Co., Inc.	10
NOVEMBER 30. By "Delilian," Antwerp.	
Bowring & Co.	198
NOVEMBER 30. By "East Indian," Far East.	
H. Muehlstein & Co. Inc.	300
NOVEMBER 30. By "Larchbank," Far East.	
H. A. Astlett & Co.	530
Bowring & Co.	277
Haldane Bierrie & Co., Inc.	320
Hood Rubber Co.	*146
Littlejohn & Co., Inc.	372
Meyer & Brown, Inc.	84
Poel & Kelly, Inc.	829
Charles T. Wilson Co., Inc.	613
NOVEMBER 30. By "Pennland," Antwerp.	
H. A. Astlett Co.	50
DECEMBER 1. By "Robert Dollar," Far East.	
Littlejohn & Co., Inc.	†494
DECEMBER 1. By "Statsdyk," Far East.	
H. A. Astlett & Co.	738
Baird Rubber & Trading Co., Inc.	257
General Rubber Co.	4,319
Haldane Bierrie & Co., Inc.	136
Littlejohn & Co., Inc.	1,630
Meyer & Brown, Inc.	706
Meyer & Brown, Inc.	*42
Poel & Kelly, Inc.	928
Charles T. Wilson Co., Inc.	134
DECEMBER 2. By "Bolton Castle," Far East.	
H. A. Astlett & Co.	530
Baird Rubber & Trading Co., Inc.	918
General Rubber Co.	7,725
Haldane Bierrie & Co., Inc.	250
Littlejohn & Co., Inc.	4,795
Meyer & Brown, Inc.	568
Poel & Kelly, Inc.	738
Raw Products Co.	200
Charles T. Wilson Co., Inc.	1,592
DECEMBER 2. By "Korea Maru," Far East.	
Poel & Kelly, Inc.	†136
DECEMBER 3. By "Makalla," Far East.	
General Rubber Co.	1,389
Meyer & Brown, Inc.	800
H. Muehlstein & Co., Inc.	160
DECEMBER 3. By "West Cajoot," Far East.	
Littlejohn & Co., Inc.	†388
DECEMBER 6. By "Belgenland," Antwerp.	
Bowring & Co.	177
DECEMBER 6. By "Diana Dollar," Far East.	
Poel & Kelly, Inc.	†290
DECEMBER 6. By "Rousillon," Far East.	
H. Muehlstein & Co., Inc.	299
DECEMBER 7. By "Alaunia," London.	
Charles T. Wilson Co., Inc.	22
DECEMBER 7. By "Baltic," London.	
Baird Rubber & Trading Co., Inc.	108
Littlejohn & Co., Inc.	201
DECEMBER 7. By "Rhine Maru," Far East.	
H. A. Astlett & Co.	482
Baird Rubber & Trading Co., Inc.	40
Paul Bertuch & Co., Inc.	100
General Rubber Co.	1,158
Haldane Bierrie & Co., Inc.	462
Littlejohn & Co., Inc.	3,284
Meyer & Brown, Inc.	499
H. Muehlstein & Co., Inc.	360
Poel & Kelly, Inc.	302
Raw Products Co.	130
Rogers Brown & Crocker Bros., Inc.	360
Charles T. Wilson Co., Inc.	376
DECEMBER 7. By "Silvercedar," Far East.	
H. A. Astlett & Co.	1,085
Baird Rubber & Trading Co., Inc.	575
General Rubber Co.	2,110
Littlejohn & Co., Inc.	2,968
Meyer & Brown, Inc.	727
H. Muehlstein & Co., Inc.	611
Poel & Kelly, Inc.	1,079
Raw Products Co.	50
Rogers Brown & Crocker Bros., Inc.	718
Charles T. Wilson Co., Inc.	615
DECEMBER 7. By "Thuringia," Hamburg.	
Rogers Brown & Crocker Bros., Inc.	150
DECEMBER 8. By "American Banker," London.	
Poel & Kelly, Inc.	220
DECEMBER 8. By "Minnekahda," London.	
Baird Rubber & Trading Co., Inc.	36
General Rubber Co.	183
Littlejohn & Co., Inc.	391
Charles T. Wilson Co., Inc.	466
DECEMBER 9. By "Medon," Far East.	
H. A. Astlett & Co.	820
Baird Rubber & Trading Co., Inc.	2,360
General Rubber Co.	5,782
Haldane Bierrie & Co., Inc.	500
Littlejohn & Co., Inc.	4,240
Meyer & Brown, Inc.	1,532
H. Muehlstein & Co., Inc.	1,258
Poel & Kelly, Inc.	1,243
Raw Products Co.	439
Rogers Brown & Crocker Bros., Inc.	118
Charles T. Wilson Co., Inc.	150
DECEMBER 10. By "Malayan Prince," Far East.	
H. A. Astlett & Co.	1,356
Baird Rubber & Trading Co., Inc.	1,093
General Rubber Co.	6,562
Haldane Bierrie & Co., Inc.	250
Littlejohn & Co., Inc.	5,223
Meyer & Brown, Inc.	1,493
H. Muehlstein & Co., Inc.	285
Poel & Kelly, Inc.	1,604
Rogers Brown & Crocker Bros., Inc.	628
Charles T. Wilson Co., Inc.	1,645
DECEMBER 10. By "Reliance," Hamburg.	
Raw Products Co.	21
DECEMBER 10. By "Springbank," Far East.	
H. A. Astlett & Co.	694
Baird Rubber & Trading Co., Inc.	275
General Rubber Co.	2,097
Haldane Bierrie & Co., Inc.	200
Littlejohn & Co., Inc.	4,275
Meyer & Brown, Inc.	861
Meyer & Brown, Inc.	*240
H. Muehlstein & Co., Inc.	324
Poel & Kelly, Inc.	1,370
Raw Products Co.	55
Rogers Brown & Crocker Bros., Inc.	112
Rogers Brown & Crocker Bros., Inc.	*100
Charles T. Wilson Co., Inc.	742
DECEMBER 13. By "City of Bath," Far East.	
H. A. Astlett & Co.	1,170
Baird Rubber & Trading Co., Inc.	1,183
General Rubber Co.	3,085
Haldane Bierrie & Co., Inc.	1,610
Littlejohn & Co., Inc.	4,563
Meyer & Brown, Inc.	450
H. Muehlstein & Co., Inc.	180
Poel & Kelly, Inc.	1,120
Poel & Kelly, Inc.	*250
Raw Products Co.	120
Rogers Brown & Crocker Bros., Inc.	59
Charles T. Wilson Co., Inc.	470
DECEMBER 13. By "Minnetonka," London.	
Littlejohn & Co., Inc.	114
Poel & Kelly, Inc.	250

*Arrived at Boston.
†Arrived at Pacific Coast.

	Cases
DECEMBER 13. By "Steel Worker," Far East.	
H. A. Astlett & Co.	175
Baird Rubber & Trading Co., Inc.	461
General Rubber Co.	7,040
Littlejohn & Co., Inc.	2,109
Meyer & Brown, Inc.	687
H. Muehlstein & Co., Inc.	913
Poel & Kelly, Inc.	525
Raw Products Co.	50
Rogers Brown & Crocker Bros., Inc.	884
Charles T. Wilson Co., Inc.	203
DECEMBER 13. By "Tosari," Far East.	
H. A. Astlett & Co.	588
Baird Rubber & Trading Co., Inc.	250
General Rubber Co.	7,171
Haldane Bierrie & Co., Inc.	200
Littlejohn & Co., Inc.	2,599
Meyer & Brown, Inc.	755
H. Muehlstein & Co., Inc.	60
Poel & Kelly, Inc.	767
Raw Products Co.	100
Rogers Brown & Crocker Bros., Inc.	165
Charles T. Wilson Co., Inc.	537
DECEMBER 14. By "American Shipper," London.	
General Rubber Co.	103
Meyer & Brown, Inc.	150
Charles T. Wilson Co., Inc.	125
DECEMBER 14. By "Andania," London.	
General Rubber Co.	32,373
DECEMBER 14. By "Aurania," Europe.	
Littlejohn & Co., Inc.	136
Charles T. Wilson Co., Inc.	14

‡Arrived at Laredo, Texas.

	Cases
DECEMBER 14. By "Cedarbank," Far East.	
H. A. Astlett & Co.	437
General Rubber Co.	938
Haldane Bierrie & Co., Inc.	159
Littlejohn & Co., Inc.	659
Meyer & Brown, Inc.	415
Poel & Kelly, Inc.	624
Raw Products Co.	1,652
Charles T. Wilson Co., Inc.	279
DECEMBER 14. By "Clan Kenneth," Far East.	
H. A. Astlett & Co.	112
General Rubber Co.	74
Littlejohn & Co., Inc.	238
Poel & Kelly, Inc.	75
DECEMBER 14. By "Fres. Monroe," Far East.	
Baird Rubber & Trading Co., Inc.	*250

Africans

	Cases
NOVEMBER 16. By "Schodack," Bordeaux.	
Littlejohn & Co., Inc.	809
NOVEMBER 23. By "Samaria," Europe.	
Littlejohn & Co., Inc.	155
NOVEMBER 26. By "Pipestone County," Europe.	
Littlejohn & Co., Inc.	385
NOVEMBER 30. By "Delilian," Antwerp.	
Hood Rubber Co.	*141
DECEMBER 7. By "Belgenland," Antwerp.	
Baird Rubber & Trading Co., Inc.	62
DECEMBER 8. By "Kofuku Maru," Hamburg.	
Hood Rubber Co.	*263
DECEMBER 12. By "Collamer," Europe.	
Littlejohn & Co.	273

Balata

	Cases
NOVEMBER 13. By "Aidan," South America.	
H. A. Astlett & Co.	220
NOVEMBER 19. By "Mayaro," French Guiana.	
Middleton & Co., Ltd.	Bales 11
NOVEMBER 30. By "Alban," Brazil.	
H. A. Astlett & Co.	25
Paul Bertuch & Co., Inc.	56
DECEMBER 11. By "Maraval," French Guiana.	
Middleton & Co., Ltd.	Bales 12

Guayule

	Cases
NOVEMBER 24. By "Panuco," Mexico.	
Continental Rubber Co. of New York	2,180
DECEMBER 7. By "Brazos," Mexico.	
Continental Rubber Co. of New York	‡860
DECEMBER 10. By "Canto," Mexico.	
Continental Rubber Co. of New York	1,620
DECEMBER 24. By "Guantanamo," Mexico.	
Continental Rubber Co. of New York	1,620

Rubber Latex

	Gallons
NOVEMBER 22. By "Steel Seafarer," Far East.	
General Rubber Co.	38,933
NOVEMBER 23. By "Silverlarch," Far East.	
General Rubber Co.	70,288
DECEMBER 7. By "Silvercedar," Far East.	
General Rubber Co.	36,739

Imports of Crude Rubber Into the United States by Customs Districts

	*October, 1926		Ten Months Ended *October, 1926	
	Pounds	Value	Pounds	Value
Massachusetts	1,488,786	$531,844	26,784,989	$16,617,431
Buffalo	.....	.....	46,269	23,834
St. Lawrence	4,455	1,715	8,335	2,326
New York	60,166,452	23,127,079	702,422,847	406,558,203
Philadelphia	.....	.....	305,229	93,536
Maryland	584,900	206,623	3,800,354	2,307,584
New Orleans	.....	.....	5,427	2,051
Los Angeles	1,689,378	647,104	13,499,379	8,434,151
San Francisco	971,209	257,208	2,961,348	1,284,590
Oregon	115,800	46,626	485,780	262,036
Washington	.....	.....	1,008,000	662,200
Minnesota	.....	.....	123,200	71,251
Michigan	.....	.....	52,511	23,394
Ohio	929,600	471,515	1,090,705	546,637
Colorado	22,400	11,006	955,184	766,032
Totals	65,972,980	$25,300,720	753,549,557	$437,655,256

*Including Latex Dry Rubber Content.

Ceylon Rubber Exports from Jan. 1st to Sept. 30th, 1926

	Tons
To United Kingdom	12,824.80
Continent	2,174.30
Australia	589.19
America	26,038.86
Egypt	5.11
Africa	52.79
India	6.42
China	2.46
Japan	104.01
Total	41,817.94

CEYLON ANNUAL EXPORTS 1920-1925

	Tons
For the same period last year	31,492.18
For the year 1925	45,697.19
1924	37,351.13
1923	37,111.88
1922	47,260.00
1921	40,210.31
1920	38,971.59

Plantation Rubber Exports from Malaya

	January 1 to October 31, 1926		
	From Singapore Tons	From Penang Tons	From Malacca Tons
To United Kingdom	8,933.32	9,988.10	9,142.62
British Possessions	3,731.90	178.78	160.04
Continent of Europe	11,153.41	1,937.95	2,847.26
United States	123,442.27	25,270.38	11,709.88
Japan	10,642.59	2,086.60	2,096.37
Other countries	97.46	11.00	.....
Totals	158,020.95	39,472.81	25,956.17

British Malaya

Rubber Exports

An official cablegram from Singapore to the Malay States Information Agency, 88 Cannon street, London, E. C. 4, England, states that the amount of rubber exported from British Malaya in the month of November last totaled 34,302 tons. The amount of rubber imported was 12,201 tons, of which 10,067 tons were declared as wet rubber. The following are comparative statistics:

	1925		1926	
	Gross Exports Tons	Foreign Imports Tons	Gross Exports Tons	Foreign Imports Tons
January	19,183	10,132	30,452	10,237
February	21,622	10,071	30,440	8,306
March	26,836	13,399	35,012	14,800
April	22,414	11,750	23,727	10,565
May	26,667	12,979	31,231	10,604
June	27,894	14,706	30,624	11,764
July	24,809	16,192	28,824	15,280
August	27,753	12,025	34,625	13,595
September	29,425	12,913	35,913	13,972
October	28,711	14,986	39,367	15,203
November	31,648	14,904	34,302	12,201
Totals	286,962	144,057	354,517	136,527

Note—The above figures represent the totals compiled from declarations received up to the last day of the month for exports from and imports to all ports of British Malaya, and not necessarily the actual quantity shipped or landed during that month.

Distribution

The following is a comparative return of distribution of shipments during the months of October and November, 1926:

	October, 1926 Tons	November, 1926 Tons
United Kingdom	7,732	8,059
United States	24,983	21,812
Continent of Europe	2,789	2,498
British Possessions	741	819
Japan	3,115	1,104
Other foreign countries	7	10
Totals	39,367	34,302

Dealers' Stocks of Rubber

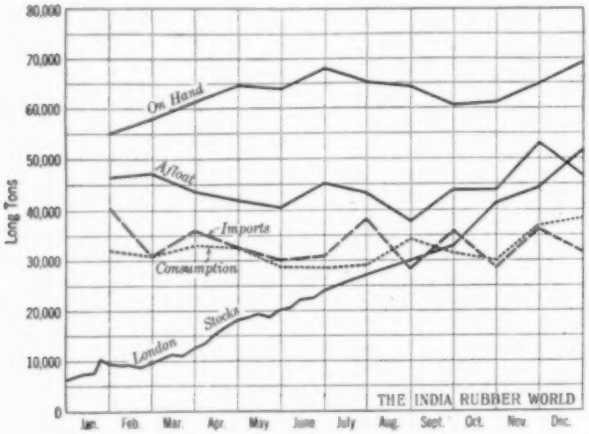
A telegram from Singapore to the Malay States Information Agency, 88 Cannon street, London, E. C. 4, England, states that dealers' stocks of rubber on November 30, 1926, were in Singapore, 21,328 tons, and in Penang 4,158 tons.

INDIA'S IMPORTS FROM THE UNITED STATES OF VARIOUS COMmodities have shown a great increase in value during the first half of 1926 as compared with the corresponding six months of 1925. Values of motor cars, motor trucks and chassis have more than doubled, while the 1926 figure for rubber tire imports reaches $364,680, as compared with $220,680, the total for the corresponding half year of 1925.

Rubber Imports, Consumption and Stocks

The graph herewith covers the rubber supply and consumption for the current year including estimated figures for December. Stocks of crude rubber in the United States increased 4,396 tons in November raising the total to 69,385 tons which was the highest of the year. November consumption was 36,342 tons.

London stocks advanced sharply in December approaching 50,000 tons at the end of the month. The gain in London stocks progressed at an increasing rate the entire year and the year closed with the tonnage 40,000 or more over the stock of one year ago.



Rubber Imports, Consumption and Stocks

Stocks afloat to the United States are estimated at 47,311 tons for December. These represent shipments from the Far East and are 5,617 tons less than November shipments. The curve for consumption took a sharp upward swing for December showing absence of the usual year end seasonal decline. The consumption for November agreed very closely with the estimate.

UNITED STATES CRUDE RUBBER IMPORTS, CONSUMPTION AND STOCKS

1925	Imports Tons	Consumption Tons	Stocks: On Hand† Tons	Stocks: Afloat† Tons	London Tons	Singapore and Penang Tons
Twelve months....	388,000	385,000	51,000*	48,000*	.....	.....
1926						
January	40,500	32,000	55,000	46,300	10,100	15,726†
February	31,000	31,000	58,000	47,000	9,100	13,653
March	36,000	33,000	61,500	43,500	12,800	18,389
April	32,700	32,500	64,400	41,900	18,500	16,328
May	30,000	29,000	64,000	40,300	20,200	16,848
June	30,000	28,600	60,460	40,907	23,800	19,400
July	38,000	27,600	65,000	43,000	27,857	23,000
August	27,800	34,500	64,000	37,400	30,159	23,362
September	26,800	32,900	61,000	44,000	36,065	26,000
October	28,150	29,850	62,100	43,465	41,080	26,600
November	36,342	28,000	64,989	52,928	44,553	25,483
Dec. (estimated)...	32,000	38,000	69,385	47,311	‡‡50,158	.....

*December 31, 1925.
†The first of each month.
‡‡December 25, 1926.

Viewing the graphs for the year it is noted that stocks on hand have been well maintained and for the last quarter were about 20,000 tons ahead of London stocks. The stocks afloat have also been well in excess of London stocks except during the last month. Monthly imports fluctuated monthly between 30,000 and 40,000 tons. Consumption was fairly steady around 30,000 tons monthly, averaging 28,000 tons.

United States Rubber Statistics

Imports of Crude and Manufactured Rubber

	September, 1926 Pounds	September, 1926 Value	Nine Months Ended September, 1926 Pounds	Nine Months Ended September, 1926 Value
UNMANUFACTURED—*Free*				
Crude rubber	83,130,100	$32,625,032	687,575,327	$412,345,347
Balata	85,965	38,776	507,214	214,370
Jelutong or Pontianak.....	1,353,080	255,247	12,448,400	2,343,937
Gutta percha	385,715	81,652	2,385,486	501,740
Guayule	565,102	136,118	7,939,659	2,156,818
Rubber scrap	1,774,961	72,808	25,748,754	1,195,010
Totals	87,294,923	$33,209,633	736,604,480	$418,757,222
Chicle .....*dutiable*	749,697	$385,400	9,721,414	$4,836,868
MANUFACTURED—*dutiable*				
Rubber belting	60,639	$40,060	576,329	$387,777
Rubber tires	6,468	45,788	12,196	111,727
Other rubber manufactures of substitutes for rubber.....	.....	96,710	.....	929,524
Totals	67,107	$182,558	588,525	$1,429,028

Exports of Foreign Merchandise

RUBBER AND MANUFACTURES				
Crude rubber	3,219,484	$1,519,870	28,937,936	$17,901,491
Balata	6,965	2,950	347,158	198,085
Gutta percha and rubber substitutes and scrap.....	.....	.....	108,637	28,056
Rubber manufactures	.....	1,288	.....	82,067
Totals	3,226,449	$1,524,108	29,393,731	$18,209,699

Exports of Domestic Merchandise

MANUFACTURED				
India rubber				
Reclaimed	1,218,094	$132,819	8,662,700	$1,051,584
Scrap and old.....	3,025,850	181,254	21,188,923	1,350,040
Footwear				
Boots .....*pairs*	161,040	350,736	628,341	1,518,541
Shoes .....*pairs*	233,959	273,046	1,148,835	1,088,018
Canvas shoes with rubber soles .....*pairs*	742,551	453,310	4,383,968	3,243,751
Rubber water bottles and fountain syringes .....*number*	42,977	33,008	200,994	148,913
Rubber gloves ....*doz. pairs*	5,940	18,545	51,242	181,091
Other druggists' rubber sundries .....*number*	.....	28,794	.....	386,420
Bathing caps .....*doz.*	4,428	11,902	140,942	311,762
Hard rubber goods				
Electrical hard rubber goods	76,877	32,258	517,098	198,531
Other hard rubber goods..	.....	19,928	.....	308,093
Tires				
Casings, automobile..*number*	133,607	2,015,005	1,085,492	18,698,204
Tubes, automobile..*number*	96,131	251,815	841,266	2,339,783
Other casings and tubes, *number*	3,682	10,904	56,136	182,212
Solid tires for automobiles and motor trucks..*number*	6,939	233,184	74,450	2,693,520
Others	114,436	33,821	1,187,811	409,305
Tire accessories	.....	152,602	.....	1,235,340
Rubber and friction tape....	112,666	34,723	786,984	259,348
Belting	416,798	239,967	3,002,840	1,962,850
Hose	433,826	181,506	4,675,660	1,949,009
Packing	149,398	71,245	1,552,897	796,289
Soles and heels.....	446,294	134,205	3,067,481	976,160
Thread	77,772	107,314	1,107,965	1,494,747
Rubber bands and erasers....	74,005	55,778	488,831	395,887
Other rubber manufactures..	.....	227,483	.....	1,848,613
Totals	.....	$5,285,152	.....	$45,028,011
Rubber toys, balls and balloons	.....	$77,613	.....	$619,052

United States Crude and Waste Rubber Imports for 1926 (By Months)

	Plantations	Parás	Africans	Centrals	Guayule	Manicobas and Matto Grosso	Total 1926	Total 1925	Balata	Miscellaneous	Waste
January .....*tons*	36,372	856	791	515	153	10	38,697	29,960	94	687	1,227
February	31,832	1,548	227	250	204	6	34,067	23,456	19	728	729
March	40,177	1,426	334	256	482	2	42,677	33,914	30	1,264	324
April	30,766	854	164	392	494	8	32,678	27,231	35	864	216
May	27,915	1,431	199	449	417	..	30,411	36,889	52	932	173
June	27,915	960	246	568	418	..	30,107	30,337	41	1,076	208
July	35,537	800	36	419	295	..	37,087	33,918	10	1,141	372
August	24,431	640	175	496	240	..	25,982	31,584	40	840	1,033
September	36,030	1,098	362	416	226	..	38,132	27,071	43	1,075	235
October	25,872	1,051	651	348	192	..	28,114	34,908	61	1,028	219
November	39,212	1,025	296	379	195	..	41,107	36,050	45	1,055	584
Totals, 11 months, 1926..*tons*	356,059	11,689	3,481	4,488	3,316	26	379,059	.....	470	10,610	5,320
Totals, 11 months, 1925.....	320,760	14,426	2,559	4,184	3,176	213	.....	345,318	609	10,192	2,824

Compiled from statistics supplied by the Rubber Association of America, Inc.